Nov. 9, 1950

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WHAT IS THE CHEAPEST AND SIMPLEST METHOD OF CONTROLLING LIQUID LEVEL?

Paper TRADE JOURNAL

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Paper TRADE JOURNAL

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DATES TO REMEMBER

NOVEMBER 24-25: American Physical Society, Div. of High-Polymer Physics, 8th Meeting, University of Chicago & the Museum of Science & Industry.

NOVEMBER 27—DECEMBER 2: 19th National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, N. Y.

DECEMBER 3-6: American Institute of Chemical Engineers, Neil House and Deshler-Wallick Hotel, Columbus, Ohio.

JANUARY 15-18, 1951: Plant Maintenance Show & Conference, Public Auditorium, Cleveland, Ohio.

JANUARY 24-26: Canadian Pulp & Paper Assn., Mount Royal Hotel, Montreal, Que.

FEBRUARY 19-22: Technical Assn. of Pulp & Paper Industry, Annual Meeting, Hotel Commodore, N. Y. C.

FEBRUARY 19-22: American Paper & Pulp Assn., Annual Meeting, Waldorf-Astoria Hotel, N. Y. C.

NEXT WEEK

Number VII in the corrosion series. This is the second installment of H. O. Teeple's article entitled "The Use of Nickel Containing Alloys in the Pulp & Paper Industry."

A subject of considerable importance to all Sulfite mills is covered in "The Burning of Calcium Base Sulfite Liquor Without Auxiliary Fuel" by R. S. Jolley, Consolidated Water Power & Paper Company, Wisconsin Rapids, Wis., and C. E. Rogers, Babcock & Wilcox Co., New York, N. Y.

A practical method of eliminating the excessive use of chlorine and alum by neutralizing natural water alkalinity with Sulfuric Acid is described in "Practical Acidification of Unbleached Kraft Pulp" by Jesse C. Bradbury, Southland Paper Mills, Lufkin, Texas.

The latest information on the uses of the most revolutionary stock preparation machine of this generation is contained in "The Curlator as a Pulp Refiner" by Harold A. Skinner, Superintendent of Pulp Mill, Marathon Corp., Rothschild, Wis.

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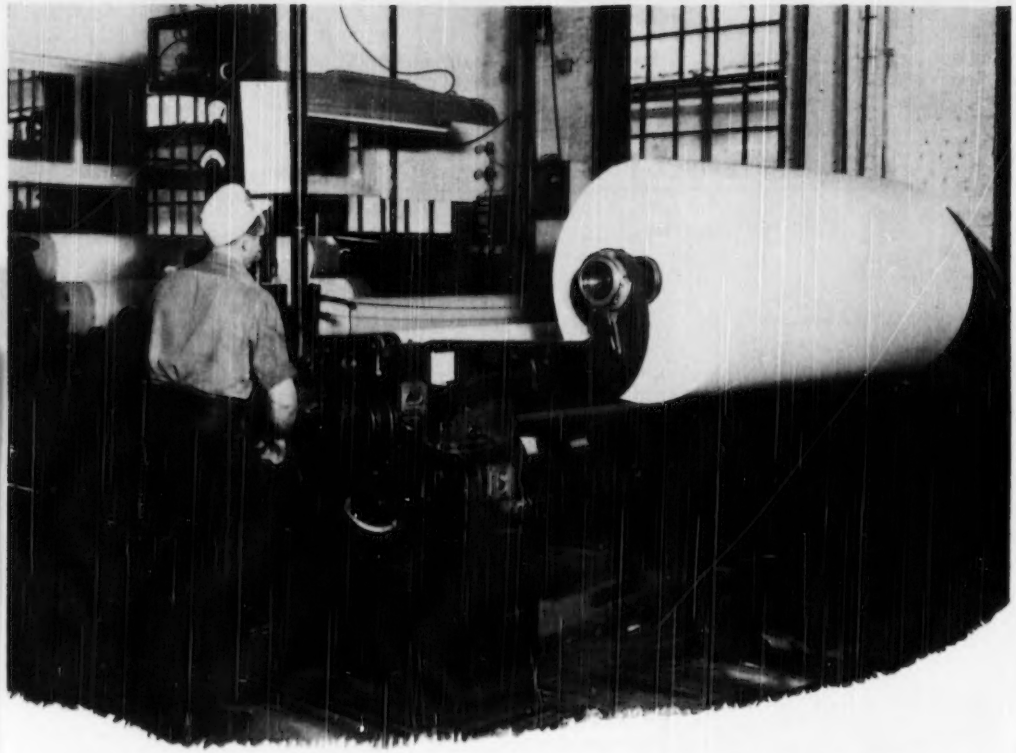

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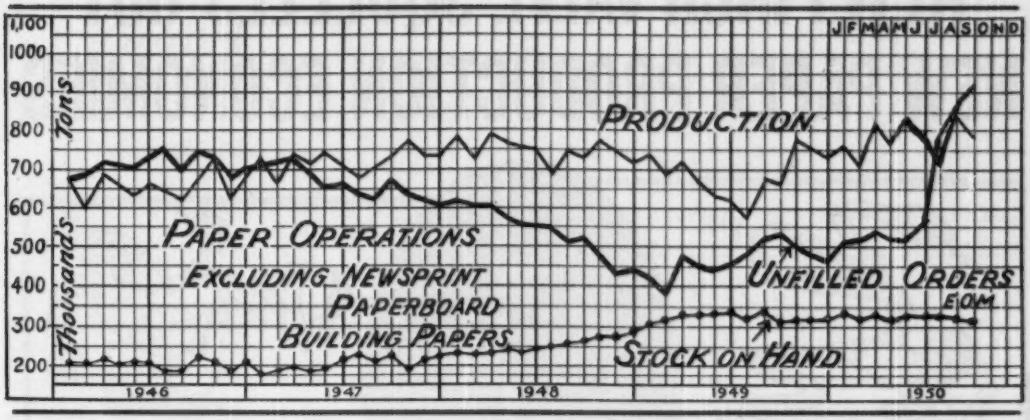
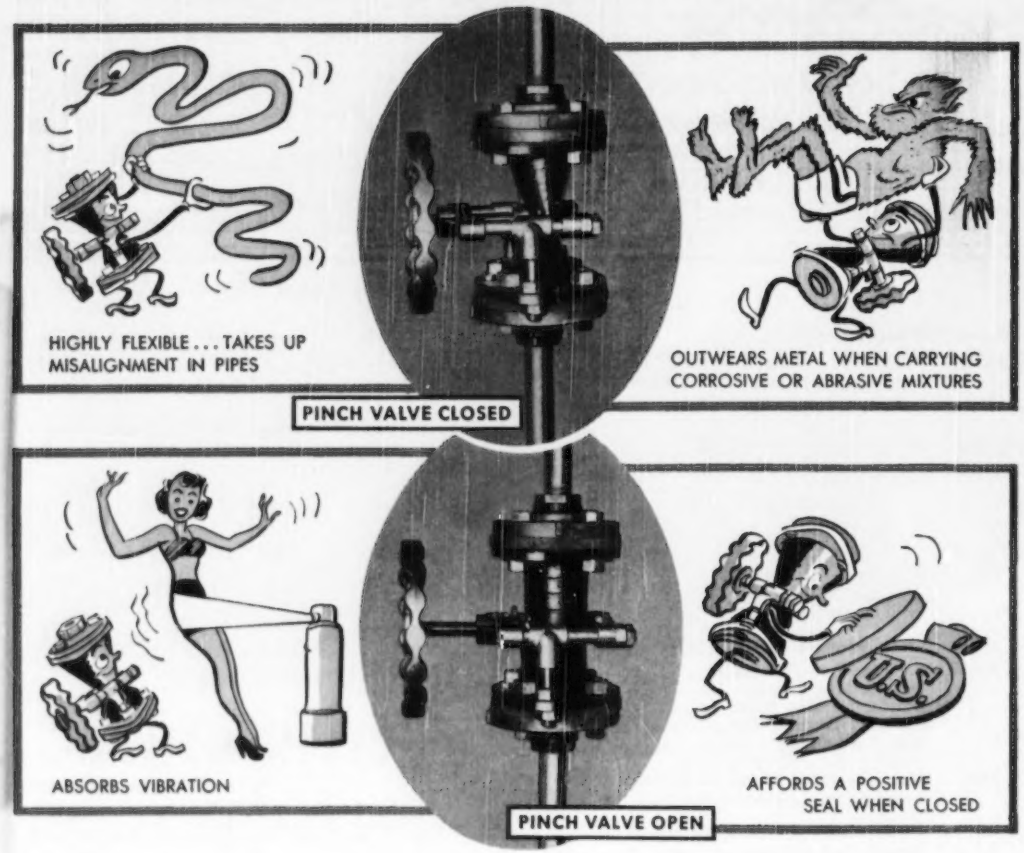
OUR BUSINESS



Source		WEEK ENDING Oct. 28, '50	Sept. 30, '50	Oct. 29, '49
APPA	Paper Production percent 6-day Capacity	106.9	106.2	98.6
	Unbl. Kraft Paper Production percent	103.4	98.6	86.7
NPA	Paperboard Operating Ratio percent inch hours	104.0	103.0	94.0
		Sept. 1950	**August 1950**	**Sept. 1949**
APPA	Paper Production* (Except Newsprint and Building Papers) ....Tons	766,000	833,805	699,796
	New Orders ....Tons	820,000	972,914	764,640
	Unfilled Orders ....Tons	932,000	886,969	463,553
	Shipments ....Tons	772,000	842,338	706,642
		Oct. 1950	**Sept. 1950**	**Oct. 1949**
NPA	Paperboard Production ....Tons	944,672	877,945	765,612
	New Orders ....Tons	931,828	872,012	803,535
	Unfilled Orders ....Tons	694,741	714,877	497,820
	Our Customers Activities Index[1]	**Latest Mo.°**	**Previous Mo.°**	**Year Ago°**
FRS	Manufactures Total Index	220	207	181
	Durable Mfg. Index	248	237	194
	Nondurable Mfg. Index	197	182	170
	Chemical Products Index	266	257	226
	Mfg. Food Products Index	188	177	189
	Printing and Publishing Index	161	150	143
ODC	Magazine Advg.-Printer's Ink Index	316	321	284
	Retail Sales Combined Adjusted Index	345.8	354.0	300.5
	Drug Index	225.9	221.2	223.9
	General Merchandise Group Index	347.3	369.2	294.5
	Grocery and Combination Index	404.2	410.9	360.8
	Prices Index			
BLS	Consumers Price Index[1]	173.0	172.5	168.8
	Wholesale all Commodities[2]	166.3	162.9	152.9
	Wholesale Foods[2]	174.6	171.4	160.6
	Commodities other than Farm Products and Foods[2]	155.3	151.5	145.0
	Wholesale Pulp and Paper[2]	163.9	159.9	156.8
	Purchasing Power of Dollar, Consumers Prices[1]	57.8	58.0	59.2
	General Activity Index			
FRS	Mfg. Production-Worker Payroll	367.2	361.9	323.0
	Unemployment Compensation Initial Claims (M)	641	971	1,252
	Miscellaneous Carloadings–Thousands of Cars	1,574	1,433	1,365
	Electric Output (Million KW hr.)	33,874	31,626	29,551
PTJ	Average 32 P & P Common Stocks as of Oct. 31	$34.04	$35.71	$29.29
	Average Indicated Dividends Common Stocks as of Oct. 31	$ 2.43	$ 2.50	$ 2.21

[1] 1935-39=100 Unadjusted Index
[2] 1926=100
* For details see APPA Monthly Statistical Summary—September 1950 Estimated Figures
° Latest Month Available on Request

NEW PINCH VALVE SQUEEZES OUT NEW PAPER PRODUCTION ECONOMIES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Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, November 8, 1950.

Pre-election market interest centered about (1) raw material inadequacies and high prices of spot lots, notably pulps, waste papers and cottons; (2) rising newsprint prices; and (3) shortages of the finished product, especially kraft wrapping papers.

A fairly general feeling prevailed that some all-out Administration defense plans would be announced immediately after elections. Speculation as to whether this will mean price controls on waste papers, cottons, and/or the finished product, or whether it will amount to distribution regulations only is influenced by wishful thinking. The mills speak of waste papers and cottons prices having "shot their mark," that price controls must follow. Buyers of papers see a rollback to July prices coming. GPO men are said to chafe about their inability to get supplies and at the "ridiculously high prices" named for fourth quarter bids. No one wants to wear a straitjacket, but he can see places where it would not be out of place.

Raw Material Costs

Shortages of market pulps are prevalent. They are stressed at mills which have been cut off from Finnish supplies by prolonged labor strikes. While Finland reports the repair men back at work and pulp mills getting underway again, considerable deterioration has been effected for want of maintenance, and replacements must be made. A supply of sulfur also must be located to get the sulfite mills in production; the pyrite mines also have been struck.

Prices of pulp substitutes moved upwards again this week in all markets, with wanted quantities moving almost at asked prices. Philadelphia quoted most grades "nominal." Chicago maintained most *bulky* prices but lifted new krafts, hard whites, ledgers and tab cards appreciably. Similar rises are noted for New York contract tonnages. Spot lots move at meteoric prices.

Kraft Wrapping Paper Short

If you shop in New York or Brooklyn, chances are that most of your Christmas purchases are going home in bags and boxes. There isn't enough wrapping paper in the stores to take them to Christmas, it is reported. Aggregate dealer stocks in New York do not add up to a car of wrapping paper. Some jobbers do not have a pound to sell.

Though latest Census figures indicate but a slight change from production of the earlier month, figures for September and October have not been released. Dealers state that the dramatic change has come in the last 30 days with the diversion of production to bag stocks by a major producer.

"This is much worse than during World War II," a dealer stated. "Then we did know we could count on a regular tonnage, though at a diminished flow." Now we have no source of supply at all, haven't had a shipment since May. And our department stores are asking us how they are supposed to wrap Christmas purchases."

It is stated that with the exception of one store which uses a special stock, no New York department store has more than a 30 days' supply. Also that since only one mill is shipping to this area, and then in only token amounts, the stores stand to get no further supplies under current conditions.

Industry spokesmen say the mills are under stress to fill orders for other types of bag stock stock, gummed papers, container and liner stock. A probability exists that much wrapping paper is rolling direct to industrial users.

Newsprint Price Clamor

Newsprint price rises during the week were a clamor of announcements, rumors and denials, consumer protests, and Representative Emanuel Celler's threats of anti-trust action.

Varying prices listed by ANPA bulletin of November 1 are:

No increase in price for balance of 1950:

Mersey Paper Co., N. S., Canada.

Increase of $6 a ton:

Abitibi Power & Paper Co. Ltd., Nov. 1.
Bowater Paper Co., Nov. 1.
Consolidated Paper Corp. Ltd., Nov. 1.
Coosa River Newsprint Co., Nov. 1.
International Paper Sales Co. (Canada), Nov. 1.
James Maclaren Co. Ltd., Jan. 1.
Price Bros. & Co. Ltd., Nov. 1.
St. Lawrence group, Nov. 1.
Coosa River Newsprint Co. (U. S.), Nov. 1.
Crown-Zellerbach Corp., Nov. 6.
Donnaconna Paper Co. Ltd., Nov. 6.

Increase of $10 a ton:

Inland Empire Co. (U. S.). (This was denied by Inland, and announcement followed with $6 rise.—*Ed.*)
Great Lakes-Canadian, Inc., Nov. 1.
Powell River Co. Ltd., Oct. 16.

TABLE I
September Paper Production

	Production Tons	Unshipped Tons	% Changes in Daily Av. Production: Sept. 1950* Compared with Aug. 1950	Sept. 1950 Compared with Sept. 1949
A. Printing Papers	266,000	430,000	+ 0.5	+ 5.8
B. Fine Papers	103,500	146,000	+ 0.9	+19.0
C. Coarse Papers	257,000	230,000	— 2.8	+ 8.4
D. Tissue Papers	108,000	n.a.	— 0.6	+11.9
E. Miscellaneous Papers	31,500	35,750	— 1.3	+13.4
F. Total, Groups A to E	766,000	820,000	— 0.8	+ 9.5

Source: APPA.
* September, 1950, had two less working days than August, 1950, and the same number as September, 1949.

Materials

Casein.—Domestic buying at a minimum. Buyers cautious as new producing season in Argentine gets underway. In face of strong European demand, Argentine market is firm.

Caustic Soda.—Supplies of all forms reported short, flaked particularly so.

Chlorine.—Acute shortage of chlorine, and prospect of heavy defense needs, brought industry request that NPA plan a DO rating system for all caustic soda, soda ash and chlorine producers, as a means of insuring fair distribution of government needs. New facilities completed at Tacoma will supply West Coast mills.

Rosin.—Further strengthening of gum rosin prices followed Washington's announcement of November selling prices for its stocks. Some 100,000 drums are involved, and prices for M through G are named at $8.15 per cwt. Earlier quotations were $7.15. Savannah quotations currently are $7.91 for same grades. Rosin sizes rise accordingly.

Mounting buyer resistance to the rate at which prices have been boosted is reported to have slowed both domestic and export demand.

Sorbitol.—Producer announces plans to double manufacturing facilities so that new production can be expected by next Fall. Listed as a strategic material by the U. S. Munitions Board and one of the chemical group of polyols in critical supply, sorbitol also is widely used in paper manufacture as a glycerine substitute and plasticizer.

Sulfur.—Faced with receding stocks, producers and consumers have asked NPA for tightening of export controls, also for allocation of supplies. On October 26, the Office of International Trade acted to require evidence of availability of stocks before export licenses will be granted. Crude and ground forms are included in the group so covered by the new regulations.

—E. P. N.

Paperboard Production (Tons)*

	Oct. 28 1950	Oct. 21 1950	Oct. 29 1949	Month of Oct.
Production	240,123	235,388	203,786	944,672
New Orders	221,590	196,950	193,527	931,828
Unfilled Orders	694,741	715,451	400,489	694,741

Source: NPA.

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News of the Week

Paper TRADE JOURNAL

THIS IS SERIOUS!

WASHINGTON, D. C.—An across-the-board cut in copper, aluminum and related metals, to manufacturing users is pending, but awaits determination of a base period on which cuts can be measured, an NPA spokesman said last week.

The cut would range between 20 and 30 percent of the base period. As contemplated now, it would affect all industrial users. No specific products have been singled out, but on this basis, fourdrinier and cylinder wire cloth would be affected as would other users. No specific mention of zinc has been heard here in this connection. However, zinc and zinc base alloys, as well as other zinc products were among ECA procurement authorizations last week in behalf of Denmark, the purchases to be made from Latin American sources, and amounting to $49,000.

EVERETT EXPANSION

Everett Pulp & Paper Co. is preparing to install a fourth paper machine at its Everett, Wash., mill.

It will increase the mill's output by about 50 per cent to a total of 50,000 tons of paper a year and increase employment by 150 to 200. The new machine, which will represent an investment of "several million dollars," will be built by Pusey & Jones Co. of Wilmington, Del. Pusey & Jones also installed the three machines now in operation, including the first, which has been in service since 1891.

The new unit is scheduled to be ready for operation early in 1952. It will manufacture book, mimeograph and writing papers.

SEEKS U. S. CAPITAL

An Argentine firm is seeking an estimated $4 million from American investors for aid in establishing paper and board mills, together with converting plant, sawmill, planing mill, and plywood and veneer mills.

The firm, Heinonen S. A. Commercial e Industrial, reportedly has invested 7 million Argentine pesos in the enterprise. The plant site, at Las Palmas, is said to have a private port and to be easily accessible to excellent transportation facilities.

For raw materials, the firm plans to use imported kraft and sulfite pulp to produce bag and wrapping paper, and kraft liner for corrugated board. Large quantities of soft woods and other American and Canadian woods will be imported.

Questions Asked the Editors

1. How much sulphur is produced in U. S.?
   Ans. 5 million tons. Pulp and Paper uses 400,000 tons.
2. How much bronze is used by the Pulp and Paper Industry?
   Ans. About 0.2 lbs. per ton of paper and paper board.
3. How many rolls of kraft wrapping are used in New York City per year?
   Ans. How would we know!
4. Where can I buy 1000 tons of newsprint?
   Ans. We wish we knew too.
5. What percentage of homes in U. S. use wax paper?
   Ans. Probably 80-90 per cent in some form or other.

WARREN'S EXPANSION PROGRAM

S. D. Warren Co., Cumberland Mills, Maine, has now underway, construction and process changes in its soda pulp mill which will cost over two million dollars. This development has the dual purpose of rebuilding certain outmoded operations in the pulp mill and also to enable an increased pulp production from 175 to 225 tons of soda pulp per day.

There are four phases embodied in this program: 1st, the installation of a modern vacuum filter pulp washing system; 2nd, a new pulp screening system; 3rd, the development of new facilities for pulp bleaching and 4th, the installation of equipment for burning the calcium carbonate sludge from the causticizing process. The first, third and fourth phases are to be housed in new buildings. The second phase is to be developed within an existing structure. Included as a complementary part of this program will be the extension of present filtered water facilities.

The pulp washing process will consist of a 3-stage vacuum filter system with provision for installation of a fourth stage at a later date if desired. The vacuum filtering equipment will consist of three 8' x 16' single stage washers together with the normal complement of pumps, tankage, consistency regulation, knotting equipment and automatic control instrumentation.

The new screen room will include a battery of six centrifugal screens, three flat tailing screens, a vacuum decker with auxiliary pumps, controls, white water system and storage chests.

The new bleaching system will consist of one stage of chlorination, one stage caustic extraction and a final hypochlorite stage. In this plant also, there will be provision for a fourth stage, if required at a later date. Chlorination will be carried out in two 16' diameter chlorinating towers approximately 48' high. The caustic tower is 14' diameter by 38' high and the typo tower will be 17' by 37' high. These towers are all to be steel with chemical tile lining. The vacuum washing equipment for bleaching operations consists of three rotary vacuum filters each 8' diameter by 16' face width. These washers together with the Brown stock washers will be situated on a common working floor in the new building housing these facilities.

Equipment to be installed for burning calcium carbonate sludge from the causticizing process consists essentially of a centrifuge, an 8½' by 9' by 170' lime kiln and new lime slaking equipment. For the most part, these will be installed in new building facilities adjacent to the present causticizing plant.

The prime new building construction—to house the pulp washing and bleaching facilities—consist of a building 70' by 105' by 90' high of steel frame and brick panel wall construction with concrete floors and concrete roof. The foundation for this building is already installed and steel erection is scheduled to start November 1. This building will require approximately 900 tons of steel, 300 tons in the foundation in the form of H piles, 300 tons of structural steel and 300 tons of steel tankage.

It is expected that considerable economies will result from these changes especially as a result of burning such calcium carbonate as is now not used, and in the increased efficiency of pulp washing. A stronger more uniformly bright soda pulp should also result as well as the increased tonnage mentioned above.

A. P. W. SALE

ALBANY, N. Y. — Sale of approximately one-third, and possibly more, interest in the A. P. W. Products Co., Inc., is underway.

Roger W. Babson and Associates, Boston, are selling the stock to a group headed by Isadore Baum, New York City, according to a conditional agreement in papers filed with the Manufacturers Trust Co., New York City, escrowee. The transaction is scheduled to be completed December 1.

Mexico's New Mill

The first paper at the new mill of Fabricas de Papel Loreto y Pena Pobre, San Angel, D. F., Mexico, was produced on October 18. The paper machine start-up was unusually successful, the first reel of paper being completed in one hour and thirty-five minutes after stock was turned on.

The new plant, located adjacent to the present two-machine mill at Loreto, is a complete unit in itself. It consists of a 30-ton-per-day groundwood mill, a 120" trim paper machine, converting plant, and power plant. Special attention was given to the architectural details, both inside and out, resulting in a striking set of buildings in line with modern design in Mexico. The pulp and paper mill was designed to operate as a unit. A "U" shaped layout was used with the power plant in an independent building in between. There are no partitions between the paper mill units.

The power plant consists of two combustion engineering 50,000-pounds-per-hour, 425 psi, 750° F. boilers. These are oil fired. There is one 1500 kilowatt condensing turbo-generator and one 1000 kilowatt-35-lb. back pressure turbine. Electric power is also available from the transmission lines of the Mexican government. The steam and power distribution is all underground. This plant will also service the existing two-machine mill at Loreto.

There are two Great Northern grinders driven by 1000 h.p. motors. Groundwood is stored in a 10-ton chest at 5 percent. A separate pumping system furnishes pulp for the old and new sections of the mill. This unit, which has been in operation for several months, is operated by two men on each shift, including wood handling to the grinders.

The stock preparation system is adjacent to the groundwood mill. Sulphite pulp which is purchased, and kraft pulp from the company's Pena Pobre mill, are furnished to a Dilts hydrapulper. A 6000 gal. water tank with automatic level control is used to assure consistency control. The baled pulp is loaded by lift trucks onto a floor level conveyor with a recording scale. One man is able to handle this operation. All chemical pulp is handled in one 8-hour shift and stored in two 8-ton chests. Operation of all valves, pumps, and selection of chests is handled from a single control board.

The refining and blending of the stock is also handled by a single operator. The chemical pulp is refined con-

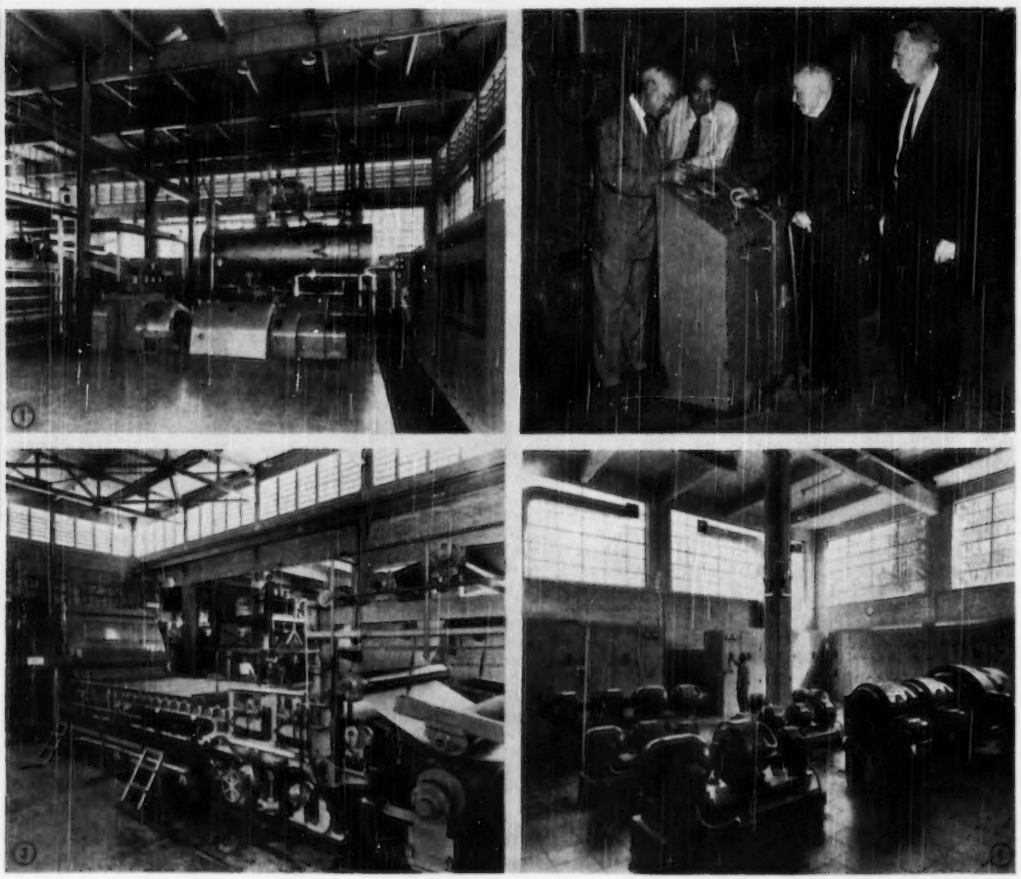

Figure 1—Power Plant showing Combustion Engineering Boilers; General Electric turbine; Control Board; and 4150 Volt Switching. Figure 2—Press section control panel at start up of paper machine—Herman A. Smith of Rice Barton Corp.; Hans Lenz, general manager and Don Alberto Lenz, president of Fabricas de Papel Loreto y Pena Pobre, and Edward T. Jones, Charles T. Main, Inc., Boston, Mass. Figure 3—Wire section of Rice Barton Corp. machine with stock preparation control board in background. Figure 4—Load center with machine drive motor generator sets. All controls for the entire mill are grouped in this one air conditioned room.

Protecting Your Product Quality

When you use Columbia chemicals, you protect the quality of your products. A background of more than fifty years experience enables Columbia production technicians to employ controlled methods and supervision that assure chemicals which meet your most exacting standards.

The same thoughtfulness and care that go into the manufacture of Columbia chemicals also are carried on throughout packaging, shipping and delivery.

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(Hydrated Calcium Silicate)
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(Precipitated Calcium Carbonate)
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(Hydrated Silica)
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tinuously and delivered to a refined chemical storage tank. A mixing chest is located near the paper machine and all controls for stock pumps, etc., including the weight and consistency regulator for the paper machine, are grouped at this location. From this platform the entire operation of the groundwood mill and paper machine can be observed.

The paper machine was built by Rice Barton Corp. It is a 132" Fourdrinier machine with a top pickup felt, creping dryer, crepe setting dryer, and fifteen 60" dryers. The machine has a General Electric sectional drive and is designed for either crepe or flat papers. There is a six inch roll calender stack. The controls for the entire plant are located in a separate room with its own ventilating system, using filtered air.

The mill was designed by Chas. T. Main, Inc. of Boston. The construction of the buildings and installation of equipment was handled by the mill's own engineering force, using local contractors.

AUSTRIAN MILL EXPANDS

WASHINGTON, D. C. — Modernization and expansion of an Austrian paperboard mill at Frohnleiten, designed to increase the output of packaging materials for European consumer goods and army rations is provided for in a project for which nearly half the estimated cost will be ECA-financed.

The mill is owned by Karton-und Pappenfabrick von Franz Mayr-Melnhof & Co. ECA financing, amounting to $580,000, including ocean freight costs, will be used for purchase of equipment in the United States including a new cylinder paperboard machine. With the new machine and installation of additional equipment to existing machinery, the total cost is expected to be $1,189,000. Output will be increased from the 1950 rate of 7,500 tons per year to 19,500 tons, ECA said in announcing its plans.

The increased output is intended to augment packaging supplies for the tobacco, food processing and soap industries, said ECA; there is also a general European demand for paperboard products to be used for food and other items requiring packaging, while the mill also is able to provide boxes for army field rations.

Austria's present machine board capacity is placed at 16,000 tons per year, less than sufficient for domestic demand alone, it was recalled. The increased output at the Frohnleiten mill is expected to meet domestic requirements and also provide about 6,000 tons additional per year for export.

Hand-skinned board is now being used to a great extent to meet existing Austrian packaging materials needs, it was stated by ECA, which is considered uneconomical.

As world markets for packaging materials expand, the export demand for paperboard is expected to grow, the ECA continued. It is anticipated that the Austrian mill's products eventually will go to Egypt, Syria, Palestine, Iran, India, Hong Kong, Latin American countries, as well as to Western Germany, Italy, Greece and Turkey.

Equipment to be purchased in the United States includes a complete set of cylinder units, a complete press section, two calendar stacks for fine water finish, machine coating equipment, reel, rewinder, double cutter, mechanical drive, two hydrapulpers, and a coating and pasting machine for production of container board.

With present equipment the mill employs 140 workers, with a daily output of 19 tons; the completed program will provide for 207 workers with an anticipated output of 65 tons daily. The project was approved by ECA after a team of American technicians visited the mill and proposed certain improvements in operating procedure, which were adopted.

CANADIAN PAY INCREASE

OTTAWA — Backing up recent claims of Canadian paper producers about rising costs of production, twelve Canadian paper firms have now granted new interim wage increases to approximately 12,000 of their employes as the result of an agreement signed between representatives of the firms and nine international unions, allowing a 6 percent increase to all workers except paperworkers who will receive a straight six-cent-hourly wage boost. These increases are effective November 1, 1950, and they raise the basic wage for all classes from $1.05 an hour to $1.11.

The present agreement between the companies and the unions expires April 3, 1951. A joint statement has been issued by A. A. Schmon, of St. Catherines, Ont., president of the Ontario Paper Co., Ltd., and J. Arthur D'Aoust, vice-president of the International Brotherhood of Paper Makers Union (AFL).

The paper firms granting the increases include the Abitibi Power & Paper Co., Ltd.; Beaver Wood Fibre Co., Ltd.; Brompton Pulp & Paper Co., Ltd.; Great Lakes Paper Co., Ltd.; K. V. P. Co., Ltd.; Kimberly-Clark of Canada, Ltd.; Marathon Paper Mills of Canada, Ltd.; The Ontario-Minnesota Pulp & Paper Co., Ltd.; Provincial Paper Ltd. (Port Arthur, Ont. Division); Spruce Falls Power & Paper Co., Ltd.; the Ontario Paper Co., Ltd.; and Long Lac Pulp & Paper Co., Ltd.

Unions involved in this new agreement include International Brotherhood of Pulp, Sulphite and Paper Mill Workers; International Brotherhood of Paper Makers; International Association of Machinists; International Brotherhood of Electrical Workers; International Union of Operating Engineers; International Longshoremen's Association; International Brotherhood of Stationary Firemen and Oilers; International Brotherhood of Carpenters and Joiners; International Brotherhood of Plumbers and Steamfitters. All are affiliated with the American Federation of Labor.

CANCELL LEAVES ST. REGIS

St. Regis Paper Co. announces the resignation of Benton R. Cancell as vice-president and general manager of manufacturing in the Printing, Publication and Converting Paper Division.

Mr. Cancell, who joined St. Regis in his present capacity in October, 1948, will become associated with the Rhinelander Paper Co., Rhinelander, Wis.

K-C SERVICE AWARDS

NIAGARA FALLS, N. Y.—Long service employes of Kimberly-Clark Corp. were honored at the company's fourth annual Quarter Century club dinner at Hotel Niagara which featured the induction of 20 new members into the club's ranks.

Each of the new members, who marks his twenty-fifth anniversary of service with this concern this year, was presented with a certificate of membership and a $100 U.S. Savings Bond.

KVP HOSPITAL CONTRIBUTION

The Kalamazoo Vegetable Parchment Co. presented a $50,000 contribution to Kalamazoo's Bronson Methodist Hospital's building completion fund campaign October 23 before approximately 400 persons. To commemorate the gift, the new hospital chapel will be known as the "Jacob Kindleberger Chapel of Memorials."

BUYS TORULA YEAST PLANT

RHINELANDER, Wis. — Rhinelander Paper Co. has purchased all outstanding stock in Lake States Yeast Corp. which owns an experimental plant for the production of dried Torula yeast from waste sulphite liquor. The yeast is used as livestock feed. The corporation was formerly owned by ten sulphite mills in Wisconsin and Michigan.

REPLACES ACID TOWERS

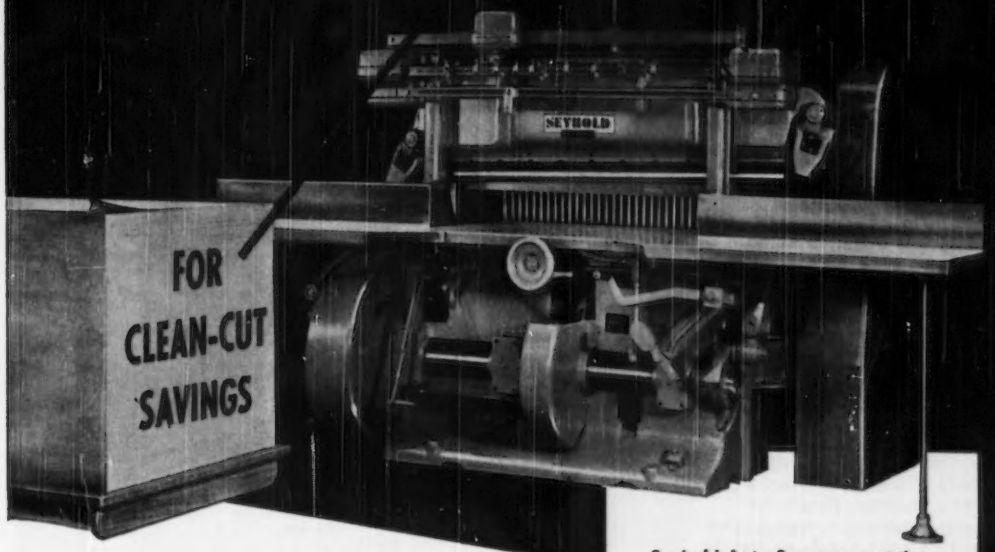
ANACORTES, Wash. — The Coos Bay Pulp Corp. has begun a construction and replacement program according to Walter Miller, resident engineer, with the replacing of its existing acid towers.

The Brooks Lumber Co. of Bellingham has the contract, which calls for two 90-foot wooden towers to handle the acid process, a new acid settling box, new pumping equipment, control valves, and acid lines at an approximate cost of $80,000. The work will be completed about January 15.

HEADS MONTMORENCY

NEW YORK—Wickliffe B. Moore has been elected president of Montmorency Paper Co., Inc. succeeding Colonel Frank W. Clarke who has been named chairman of the board. Dr. Allan C. Hill was elected first vice-president.

SEYBOLD Z ACTION



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Alkaline Pulping Conference

One of the highlights of the annual Alkaline Pulping Conference of the Technical Assn. of the Pulp and Paper Industry at Jacksonville, Fla., October 25 to 27, was a description of a new system of pressure washing of kraft pulp at the plant of the Chesapeake Corp. of Virginia, West Point, Va. The paper was presented by Henry Vranian of that company.

The system, Mr. Vranian said, is entirely new, being less than a year old, and is believed to be the only one of its kind in the United States. It has been in successful operation since November, 1949.

By means of schematic diagrams shown on slides, Mr. Vranian pointed out some of the details of the system. The equipment is entirely enclosed so that no pulp is seen. The screw presses operate under 300-ton pressure and handle from 400 to 600 tons per day. Among its advantages, Mr. Vranian said, are absence of foam trouble, uniform tonnage, uniform operating conditions and better handling of soft stock. A 200-ton high consistency pulp tank used for storage provides for variations in the flow of pulp from this equipment. The total water supply required is 180 gal. per min.

There was unusual interest as indicated by a crossfire of questions.

Another subject in which a great amount of interest was shown was the effect of wood storage on yield and quality of pulp. W. F. Gillespie, Gaylord Container Corp., Bogalusa, La., led this discussion by giving the results of various tests his company has made to determine with some degree of exactness the actual deterioration of wood from long storage as shown up in the pulp. He explained that climatic and other conditions in the South, such as ravages of insects, make the problem more acute in the warm areas than in the colder sections of the country. Prolonged storage, said Mr. Gillespie, means cheaper handling but decreases the quality and yield.

Studies were made of various types of deteriorated wood, first on a laboratory basis and then on a mill basis during which there was a continuous mill run of four days on dry wood. The results were checked against a previous six months' run on green wood. It was determined, said Mr. Gillespie, that green wood produces a much better product as to tensile strength, basis weight, and other factors. From dry wood a sheet of higher density was obtained, but in other respects it showed lower results, having been about 12 per cent below standard. The dry wood produces more fines, had a lower specific gravity and lower tensile strength.

Dr. W. J. Nolan of the Pulp and Paper Laboratory, University of Florida, at Gainesville, gave the results of experiments conducted at the university in reducing cooking time. He gave detailed explanations showing how, on a laboratory basis, cooking time was reduced from the usual two or three hours to a period of 10 to 20 minutes. The laboratory at Gainesville, he said, is convinced that high yields of easily bleached pulp can be produced by pulping at constant temperatures and concentration for much shorter cooking periods than now commonly employed.

Dr. Nolan was quite enthusiastic about the possibilities of using scrub oak in making paper. The work which the laboratory has been doing in this field was described in an article which appeared in the September 28 issue of THE PAPER TRADE JOURNAL. Harold Colee, executive vice-president of the Florida State Chamber of Commerce, also touched on this subject in a talk at a luncheon meeting. "Further development of this process," said Mr. Colee, "is a challenge to your profession and to the companies with which you are associated."

K. W. Coons of the Department of Chemical Engineering, University of Alabama, at Tuscaloosa, described research work done at the university in the development of a new condenser for digester gas-off. Money was provided by the university and other sources to cover a long series of experiments, during which three types of condensers were built—a cascade condenser, a rotating disk condenser and a vent gas cascade condenser.

The subject of compensating for chip moisture variations was handled by Murray L. Oliver, Continental Can Co., Hopewell, Va., who stated that ten months' tests on wood that had been in storage for varying periods had shown his company that a number of methods can be used successfully for correcting these moisture variations. One is the use of a weightometer, another is the addition of green and white liquor in order to attain a proper balance. Mr. Oliver presented charts that have been worked out by his company for the making of such corrections. He said that the present system has been used quite successfully for two years.

A paper prepared by A. E. Drew, Southland Paper Mills, Lufkin, Texas, was a study of various methods employed in that plant to conserve water. Up to 25 per cent of used water can be reclaimed, Mr. Drew contended. A system which the Southland Paper Mills has installed at a cost of less than $2000 is responsible for the reclaiming of about 700 gal. per min.

In view of the growing efforts in many states to curb air and water pollution, close attention was given to the account given by W. O. Hisey, managing director of the South African Pulp and Paper Industries, Ltd., of Johannesburg, South Africa. Mr. Hisey, a former professor at the New York State College of Forestry, Syracuse, N. Y., said that odor had been almost completely eliminated at the South African plant by a procedure developed by Tomlinson of Canada. The Johannesburg mill is a soda pulp mill, using about 25 per cent pine and the remainder hard woods such as eucalyptus and wattle, a shrub of the acacia family indigenous to South Africa and Australia, but not grown in this country. These South African hardwoods give off more odorous materials than the soft woods.

The method employed at Johannesburg, said Mr. Hisey, eliminates about 85 per cent of the sulphur-bearing gases, principally by means of a black liquor oxidation tower, where the material is treated with air. By continuous relieving of the blow tank no air is allowed to enter this tank and the gases are kept from exploding. By this system 8.3 lbs. of gas per ton of pulp is recycled back to the furnaces. The effluent amounts to 1800 gal. per ton of pulp. A cyclonic evaporator picks up sulphur in salt cake and other forms. The fume towers recover 150 lbs. of salt cake per ton of pulp. As the plant is 5700 ft. above sea level, the air is very dry and the moisture from these towers evaporates quickly. The oxidation tower is 10 ft. in diameter by 50 ft. high, which is overcapacity for a plant producing 60 to 70 tons of pulp a day, but it was built to provide for later expansion. The cyclonic evaporator is roughly of the same size.

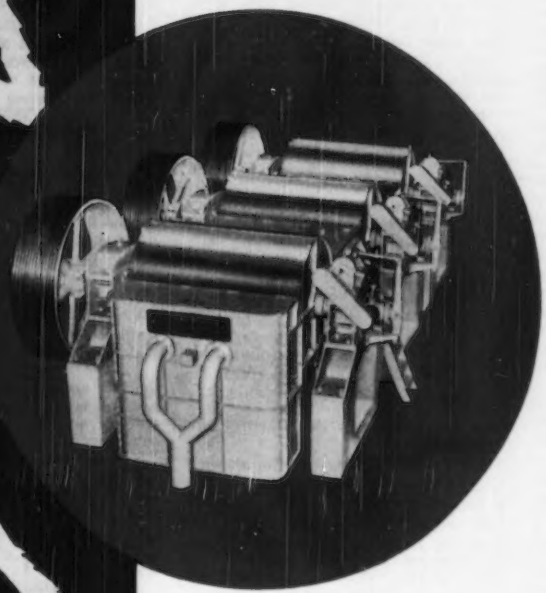
In answer to a question, Mr. Hisey said that the cost for this installation was roughly 10 per cent or less than the cost of the plant. The slightly higher operating cost due to this equipment, is more than offset by the saving of chemicals, thus resulting in a lower cost per ton of pulp.

Allyn R. Skelton, American Cyanamid Co., Mobile, Ala., presented a paper on "The Problems of White Water Reuse from Standpoint of Chemical Content."

The meeting was opened with a symposium on causticization. In reviewing literature that has been published on this subject, R. R. Fuller, Gulf States Paper Co., Tuscaloosa, Ala., said that research work on literature that has been published on this subject has been scattered and added that efforts should be made toward standardizing what has been found. He said there seemed to be general agreement that the higher the sulphidity the lower the attainable causticity. As sulphidity goes up the pulp becomes stronger—as for example a sulphidity of 0.25 to 0.30 lbs. to the gallon produces a stronger pulp than if it runs 0.20 to 0.25 lbs. to the gallon. From a cooking standpoint, he said, a high sulphidity is needed, but it makes recovery furnace operation more dif-

LIGHTNING
strikes in 3 places

A little over a year ago the first Multi-Roll *Controlled Flow* VICTORY BEATER was installed in the Palatka, Florida mill of the Hudson Pulp & Paper Corporation where kraft bag and wrapping papers are made. This high production unit operating 24 hours per day, 7 days per week, with no shut-downs caused by mechanical difficulties, has chalked up a record of performance unequaled in the paper industry.



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ECONOMY . . . 35% power savings—low installation and operating costs.

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Two additional Multi-Roll *Controlled Flow* VICTORY BEATERS are included in the Hudson Pulp and Paper Corporation's new seven million dollar expansion program for the Palatka, Florida, mill.

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ficult. He said that much would be gained if the sulphidity could be built up after the causticizing operation.

Under the subject of "Hydrogen Sulphide and Its Application to Sulphidity Control," L. B. Taylor, Pittsburgh Plate Glass Co., Pittsburgh, discussed the effects of various chemicals on reactors. Studies indicate, he said, that reactors made of carbon steel have been generally satisfactory from the standpoint of corrosion. It has been observed that there is less corrosion from the indirect than from the direct heating method. Not much experimenting has been done with steel alloys or other metals except for some vulnerable parts.

"The Effect of Percent Causticity on the Settling Rate of White Liquor" was the subject of a paper by Milton Roberts, Hudson Pulp & Paper Corp., Palatka, Fla., which gave detailed explanations of tests made by taking large samples of green liquor and adding various amounts of lime.

Discussing "Causticizing Equipment," J. M. Kahn, Infilco, Inc., Chicago, gave the results of a series of experiments made in pilot plants. He said the experiments were of a somewhat radical nature and still in an embryonic state. With the use of epsom salts in settling, a 40 per cent reduction in silica and an 80 per cent reduction in iron content was achieved. The settling rate, he said, was increased 12 per cent when liquor was causticized. Green liquor was clarified by coagulation. In these experiments magnesium salts were also removed from the green liquor and did not get over to the white liquor side. Suspended solids were removed by filtration.

W. B. Gery, Dorr Co., Stamford, Conn., said that his company has been giving a second and a third look at the slaking step, which, he added, could stand some improvement. The gap between what pulp mills would like to get and what they do get in causticizing efficiency might be closed somewhat, Mr. Gery said, by a secondary causticizing to get rid of excess lime. In the Dorr equipment, he said, excess lime usually runs from 1 to 2 percent. A secondary causticizing might raise the conversion from 82 per cent to 84 per cent.

H. O. Teeple, International Nickel Co., New York, said that in causticizing equipment carbon steels had usually been found to be quite satisfactory from the standpoint of corrosion. He said that lime scale usually prevents the penetration of corrosion into the metal. While corrosion-resisting steels or metals might give greater corrosion protection, they are less easy to fabricate. Stainless steel used for such purposes, he said, is likely to develop stress corrosion cracking.

W. M. Ebersole, Macon Kraft Corp., Macon, Ga., described the methods used at the Macon mill. The causticizing room and the lime kiln are considered as one operation. Owing to the varying rate of operation in the causticizing room, it has been found desirable to use a two-hour detention time, which gives better results. By keeping daily charts of the white liquor per 100 gal. of black liquor the reduction of liquor loss has been apparent.

A comment made by Franklin L. Jones, St. Joe Paper Co., Port St. Joe, Fla., was that measurement terms used by the industry should be standardized so that management will know "what we are talking about." The use of grams, pounds and gallons interchangeably has become a confusing situation, he said.

A symposium was also held on lime burning, which was led off by S. A. Kiedl, Allis-Chalmers Mfg. Co., Milwaukee, Wis., who asserted that lime burning equipment should have automatic control for best results. He said that close control will keep a better check on impurities, bring about better quality and less maintenance throughout the system.

B. Magee, Traylor Engineering Co., Allentown, Pa., read a paper which had been prepared by Ralph E. Gibbs, York, Pa., shortly before his recent death. The subject was "Selecting the Rotary Kiln for the Lime Recovery Plant." It gave a wealth of figures on the fundamentals of lime kiln thermodynamics and the economic and accounting features of lime kiln operation, including a detailed study on costs of various fuels — oil, gas and coal.

Robert Bowen, North Carolina Pulp Co., Plymouth, N. C., described the Bird centrifuge for sludge washing and thickening, which, he said, has been used successfully in the North Carolina plant.

R. S. Walker, Traylor Engineering Co., Allentown, Pa., said that two kilns of the same size will not operate just alike, there being many influencing factors. He discussed rotary kiln operation at some length. "No kiln," he said, "should be operated for burning of sludge without automatic draft control."

T. C. Johnson, Union Bag & Paper Corp., Savannah, Ga., commented on the importance of lime burning for efficient mill operation. From the caustic room there must be uniformity of operation if efficiency is to be attained.

Arthur E. Reed, Gaylord Container Corp., Bogalusa, La., discussed ring formations, which, he said, are the result of the failure of automatic regulation and the acts of unskilled workers, also being frequently caused by keeping the soda content too high. Other phases of lime burning operations were discussed by J. E. Bramlett, Champion Paper & Fibre Co., Canton, N. C.; R. H. Stevens, National Container Corp., Jacksonville, Fla., and Harold Morris of the same company.

The final day of the conference was devoted to a trip to Gainesville and Palatka. At Gainesville the paper chemists and engineers had an opportunity to see the university's Pulp and Paper Laboratory. At a luncheon which followed brief talks were made by Joseph Weil, dean of the College of Engineering, Dr. Ralph A. Morgan, director of the Engineering and Industrial Experiment Station, and Dr. John Stuart Allen, vice-president of the university.

At Palatka the visitors were shown through the plant of the Hudson Pulp & Paper Corp., where construction work is in progress which will double the present rated capacity of 150 tons of pulp per day. A piece of equipment of particular interest to many is the Victory beater, built by the Noble & Wood Machine Co., Hoosick Falls, N. Y., the first and only one operating in a paper mill. After the inspection trip the visitors were taken to a lodge at Welaka, Fla., where the Noble & Wood Machine Co. was host.

It was decided at a meeting of the Alkaline Pulp Committee that another annual meeting will be held a year hence. No meeting place was definitely selected, but Richmond, Va., was favored.

HUSTON ON LABOR RELATIONS

Robert A. Huston, manager of public and industrial relations, Kalamazoo Vegetable Parchment Co., Parchment, Kalamazoo, Mich., talked to about 75 men at the October 19 meeting of the Michigan Division of the American Pulp and Paper Mill Superintendents Assn. His subject was Labor Relations in a Mobilized Economy.

In the early part of his talk he touched upon some political aspects of present labor laws. He also related how the recent defense acts may affect our economy.

The first step in dissipating the distrust of labor and management, related Mr. Huston, must be taken by management. To achieve results, he said, management must demonstrate to its employes that it is a good management.

In the opinion of Mr. Huston, management can do something about cementing the employer-employe relationship into something genuine even though the collective bargaining process prevails. Mr. Huston, in continuing his remarks, made it clear that the real labor relations in a mobilizing economy are those which exist around the bargaining table and, more particularly, those experienced in the day to day contacts between the supervisors and their men.

Mr. Huston further stated that, if we insist upon taking a legalistic approach in negotiating a labor agreement or processing a grievance, we cannot expect to have a harmonious relationship.

If we are to make the best of the mandate to bargain collectively, he concluded, we must try to gear our thinking to people, not laws; social humanities, not retaliatory measures. Above all, he commented, we must school ourselves in what makes people tick.

AT OCTOBER MEETING OF MICHIGAN SUPTS.

Back Row (L. to R.) Yoshiro Koge, Acting Chief, Research Section, Engineering Department, Jujo Mill, Jujo Paper Mfg. Co., Ltd., Chuo-Ku, Tokyo, Japan; Richard H. Peeters, St. Regis Paper Co.; Miyoji Kawashima, Chief, Planning Section, Production Department, Jujo Paper Mfg. Co., Ltd., Chuo-Ku, Tokyo, Japan; Harvey Hartman, American Box Board Co.; Henry I. Daty, C. T. Takahashi & Co., Seattle, Wash.; and Frank Hamilton, Allied Paper Mills . . . ront Row (L. to R.) Glen Sutton, Sutherland Paper Co.; O. W. Callighan, Edgar Brothers Co., Robert A. Huston, Kalamazoo Vegetable Parchment Co., and Raymond L. Barton, Michigan Paper Co.

O. W. Callighan, chairman of the Michigan Division, introduced Mr. Huston and also headed the discussion which followed Mr. Huston's address.

Other highlights of the meeting included a report by Ray Barton, a trustee of the national association, on the joint meeting of the Southeastern and Southern Divisions, held on October 12-14, 1950, at the George Vanderbilt Hotel, Asheville, N. C. Recognition also was given to Leonard Hanks, until recently manager of the Kalamazoo plant of the National Gypsum Co., as a member of the Michigan Division of the superintendents association, for his promotion to the position of production manager of all of the paper mills of the company.

Fred L. Buchanan, for many years associated with the Waldorf Paper Products Co., St. Paul, Minn., who has taken over the former duties of Mr. Hank at Kalamazoo, was introduced to the group as were three Japanese guests who had been visiting the paper mills in Kalamazoo. Two of the men, Miyoji Kawashima and Yoshio Koge, are associated with the Jujo Paper Manufacturing Co., Ltd., of Tokyo; the third, Henry I. Daty, with C. T. Takahashi & Co., of Seattle.

Walter Wolfe, Mac Sim Bar Paper Co., Otsego, Mich., who recently lost his left hand in an accident at the mill, a long-time member of the Michigan Division, received the good wishes of all present at the meeting by a mailing of get-well cards to him.

Paper-Plastics Conference

The Plastics Committee of TAPPI held its Paper-Plastics Conference October 19-20, at New York State College of Forestry, Syracuse, N. Y.

Attendance — *272*, of which over 200 were from industry with representation about equally divided between the paper industry and the plastics and resin industry. The remainder, about 65, were from educational and research institutions and governmental agencies. There was wide geographical representation with attendance from states as far distant as California, Louisiana, Georgia, Illinois, Michigan, Minnesota, Wisconsin, Maine, Indiana, Alabama, as well as from Ontario and Quebec.

Session — 9:30 a.m., October 19.

Properties of Plastics in Relation to Papermaking

Due to a railroad wreck, the discussion leader, Dr. Herman Mark, did not arrive until toward the close of the morning session. Dr. A. D. McLaren acted as discussion leader in place of Dr. Mark.

1) "Adhesion Fundamentals" by D. B. Hatcher, Plaskon Division, Libby-Owens-Ford Glass Co.

2) "Permeability of Polymers to Vapors" by A. D. McLaren, Polytechnic Institute of Brooklyn.

Dr. McLaren discussed the relations between the transmission of vapors and the chemical and physical character of the plastic film.

3) "Effect of Plasticizers on Physical Properties of High Polymers" by R. F. Boyer, the Dow Chemical Co.

Dr. Boyer discussed the nature of solvent type plasticizers, that is, external plasticization.

4) "New Polymers and Their Possible Application to Paper" by Herman Mark, Polytechnic Institute of Brooklyn.

Professor Mark indicated the potential applications of fluorinated hydrocarbon polymers and also the use of bis-phenols as a means of modifying the rigidity of phenolic resins through internal plasticization. Condensation polymers of glycol and terephthalic acid offer interesting possibilities as a new fiber. Other current developments in the polymer field were mentioned by Dr. Mark including modified polybutadienes.

Lunch — 12:30, Drumlins Country Club.

About 165 attended luncheon. Transportation was provided from Marshall Hall and return by chartered buses. Dean Joseph S. Illick gave a short address of welcome to the conferees to the New York State College of Forestry. Dr. Illick pointed out the development of the wood chemistry and plastics programs at the College and their relation to forestry.

Session — 2:00 p.m., October 19.

Beater Addition Fundamentals

Professor C. E. Libby, head of the Department of Pulp and Paper Manufacture, New York State College of Forestry, was chairman of this session. Allan Schenk of the Riegel Paper Corp. was discussion leader.

1) "The Effect of Latex Variables in Beater Addition of Nitrile Latices" by D. M. Yost, Sorg Paper Co., and William H. Aiken, The Goodyear Tire and Rubber Co.

This paper was the first of two presented on the subject of nitrile latices. The paper was given by Mr. Aiken. Mr. Aiken pointed out that a

PHOTO I—Left to right: Dr. Arthur D. McLaren, professor of polymer chemistry, Polytechnic Institute of Brooklyn; Dr. Raymond F. Boyer, Director, Physical Research Laboratory, Dow Chemical Co., Midland, Mich.; Dr. David B. Hatcher, Manager, Industrial Chemistry Division, Libby-Owens-Ford Glass Co., Toledo, Ohio; Richard T. Bingham, TAPPI representative, Dr. Edwin C. Jahn, TAPPI plastics committee and conference Chairman, Director of Research, State University College of Forestry, Syracuse; Dr. Ralph T. Nazzaro, Assistant Professor of Forest Chemistry, State University College of Forestry, Syracuse.

PHOTO II—Left to right: Dr. Herman Mark, internationally known scientist in plastics chemistry, Polytechnic Institute of Brooklyn; C. E. Libby, Professor of Pulp and Paper Manufacture, State University College of Forestry, Syracuse; D. M. Yost, Director of Research, Sorg Paper Co., Middletown, Ohio; William H. Aiken, Assistant Manager of Chemical Division, Goodyear Tire and Rubber Co., Akron, Ohio. PHOTO III—Left to right: Eli A. Haddad, research chemist, Monsanto Chemical Co., Springfield, Mass.; M. E. Wendt, assistant manager, Chemical Production Development Division, Goodyear Tire and Rubber Co., Akron, Ohio; Ralph F. Nickerson, group leader, Research Department, Monsanto Chemical Co., Everett, Mass.; A. L. Hatfield, research chemist, B. F. Goodrich Chemical Co., Cleveland, Ohio; Dr. W. Allan Schenck, head of development group, Riegel Paper Corp., Milford, N. J. PHOTO IV—Seated left to right: Dr. Harold M. Spurlin, research chemist, Hercules Powder Co., Wilmington, Del.; F. A. Simmonds, research chemist, U. S. Forest Products Laboratory, Madison, Wis.; Dr. Robert H. MacClaren, research chemist, Eastman Kodak Co., Rochester; standing: Dr. Harold Tarkow, research chemist, U. S. Forest Products Laboratory, Madison, Wis. PHOTO V—Left to right: I. J. Gruntfest, V. J. Moser, both of Rohm and Haas Co., Philadelphia, Pa.; Roger C. Bascom, technical service manager, Hycar and Rubber Chemicals Division, B. F. Goodrich Chemical Co., Cleveland, Ohio.

number of nitrile rubber latex variables have been studied to determine their effect on beater impregnation, but that the work was limited to latices prepared with one basic polymerization system and to a medium beaten Scandinavian unbleached kraft pulp. Optimum properties were obtained with a rubber of medium acrylonitrile content and molecular weight with no additional stabilization after polymerization.

With alum as a coagulating agent optimum properties were obtained at a final pH range of 4.5 to 5.5. Somewhat better properties were obtained by coagulating with a 100-20 mixture of alum-sodium hydroxide at a final pH of 5.5 to 6.5. Coagulation with acids or acid-alum mixtures is to be avoided because it, as well as final pH values above 6.5, causes sticky sheets.

Although vulcanizing of the latex after coagulation appears to give a beneficial effect, this is offset by losses in properties brought about by the extra stabilizer that must be added along with the curing ingredients. Plasticizers improve drape and softness but decrease strength. Both stretch and edge tear are increased almost lineally with increased amount of latex while tearing strength progressively decreases. Bursting strength increased to a maximum while tensile tended to decrease.

2) "The Effect of Certain Papermaking Variables in Beater Addition of Nitrile Latices" by D. M. Yost, Sorg Paper Co., and William H. Aiken, The Goodyear Tire and Rubber Co.

This paper was presented by Mr. Yost. Mr. Yost pointed out that the latex may be added to the pulp either before or after beating, but that it should not be coagulated until near the end of the beating processes. The amount of latex that could be incorporated in a beaten unbleached kraft pulp was greatly increased by reducing the pulp consistency. For latex contents up to 33 parts per 100 parts of pulp better properties were obtained the higher pulp consistency. For greater amounts of latex better properties were obtained at lower pulp consistencies. Unbeaten bleached kraft pulps showed a greater tolerance for latex than unbeaten unbleached kraft pulps. However, beating bleached pulps did not increase their latex tolerance whereas the amount of latex that could be incorporated into unbleached kraft pulps was increased by beating.

Addition of latex increased the elongation and reduced the stiffness of all pulps tested. Effect on other properties depended to a great extent on the type of pulp used. The addition of latex showed little effect on drainage properties.

The stretch and tearing strength of latex-containing sheets relative to sheets not containing latex remained the same with variation in basic weight. Edge tear, bursting strength and tensile strength, on the other hand, showed relatively higher values at the higher basic weights.

The addition of rosin size appeared to give no difficulties in latex-pulp systems. The addition of clay, however, reduced physical properties. It would appear that pulps may be dyed, but that best results are obtained when the color is added after the latex but before the alum.

The wet broke can be easily reworked with no appreciable reduction of properties. The dry broke on the other hand is hard to disperse and gives reduced properties. Mr. Yost pointed out that a mill run has been made with the latex developed in these studies, and that results obtained were in excellent correlation with the laboratory studies.

3) "Phenolic Resins in Paper Modified by Acrylonitrile Rubbers" by R. C. Bascom, B. F. Goodrich Chemical Co.

Mr. Bascom pointed out that phenolic resins are being used in nitrile rubbers as reinforcing resins to increase toughness and abrasion resistance and are used for such widely divergent applications as bonding automobile brake shoes to linings and bonding shoe soles to shoes. The introduction of nitrile rubber in conventional phenolic molding compositions causes pronounced changes in physical properties. Nitrile rubber phenolics withstand shock loads of from 1½ to 8 times greater than phenolics alone before first signs of failure and withstand shock loads of from 2-15 times greater than straight phenolics before complete failure. Mr. Bascom pointed out that the problem is to develop means of taking advantage of these desirous properties using methods and equipment available to the paper industry. He described laboratory experiments following techniques described by Snyder and his co-workers (April 1950, TAPPI). Pulp stock in the beater is added to an alkaline pH and the modified resin thoroughly dispersed with the roll lifted. The diluted phenolic resin is then run in at a point where maximum agitation is present. After a suitable dispersion time, the precipitating agent is added which will reduce the furnish to a point of 4.0–4.5. Incorporation of nitrile rubber results in improved flow and increased impact strength. This property is particularly important in the production of laminates in that such laminates may be cold punched without fracture. When high impact compounds are used the resin and rubber may be co-precipitated followed by dewatering, extruding and conditioning. When laminating papers saturated off the machine are molded, the resin flows away from the fibers resulting in a dense structure, and there is no evidence of flow of fibers or rupturing of the sheet.

4) "Applied Studies of Cationic Urea Formaldehyde Wet Strength Resins" by I. J. Gruntfest, E. M. Young, Jr., and V. J. Moser, Rohm and Haas Co.

This paper was presented by I. J. Gruntfest. Mr. Gruntfest pointed out that cationic urea formaldehyde wet strength resins are now widely used in the paper industry. The known theory of the action of these resins,

however, does not permit prediction of the time that the resin must be in contact with the stock in order to obtain optimum results. In the studies described by Mr. Gruntfest, a typical unbleached southern kraft furnish was used and it was found that even under the most severe stock dilutions and short contact times that there was no interference with the satisfactory performance of these cationic resins. The sulfate ion which has been found to reduce the effectiveness of the cationic melamine formaldehyde resins has no deleterious effect on the results obtained with the cationic urea resins.

There was a very active discussion following all the papers in this session. The high interest in the papers and the discussion was indicated by the fact that the entire audiences remained consistently throughout the session until nearly 6:00 p.m.

Session — 9:30 a.m., October 20.

Cellulose—Accessibility, Reactivity and Properties Relating to Plastics

Forrest A. Simmonds of the U. S. Forest Laboratory was chairman of this session. Dr. John A. Howsman of the American Viscose Corp. was discussion leader.

1) "Pulp Property Requirements for Dissolving Pulps" by Robert H. MacClaren, Eastman Kodak Co.

Dr. MacClaren pointed out that the use of wood pulps in the nitration and viscose processes involves little difficulty but that in acetylation there are several problems most of which resolve around the lack of clarity in the solution and the film. An example of the difficulties involved is illustrated by the use of distilled water. If distilled water is used to wash the pulp, one will end up with a muddy acetate film. It is necessary to have calcium ions present to neutralize carboxyl groups. Even a very small amount of carboxyl is of consequence. Dr. MacClaren pointed out that it is difficult to evaluate pulp for acetylation except by actually acetylating.

2) "Kinetics and Equilibria in Cellulose Reactions" by H. M. Spurlin, Hercules Powder Co.

3) "The Accessibility of Cellulose" by Harold Tarkow, U. S. Forest Products Laboratory.

Dr. Tarkow discussed various methods for arriving at a value of accessibility and described in detail the work of the Forest Products Laboratory on the new method based on the ability of formic acid to react only with the primary hydroxyl group in the anhydroglucose residue.

4) "Accessibility as Determined by Formic Acid Esterification" by R. F. Nickerson, Monsanto Chemical Co.

Lunch — 12:30, Drumlins Country Club.

About 150 members of the Conference attended the luncheon on Friday. There was no formal program but Mr. Wheadon, director of the Institute of Industrial Research of Syracuse University, and Dr. Hardy L. Shirley, assistant dean of the New York State College of Forestry, spoke very briefly. Mr. Wheadon told in a very few words the main objectives of the Institute of Industrial Research, and Dr. Shirley gave a brief resume of the graduate research program of the College of Forestry.

Session — 2:00 p.m., October 20.

Plastic Coating Fundamentals

Dr. R. T. Nazzaro who teaches the course in plastics technology at the New York State College of Forestry served as chairman of this session, and Dr. R. H. Kienle of the American Cyanamid Co. was discussion leader.

1) "Alathon Polythene Coatings — Properties and Techniques" by Alfred Stockfleth, E. I. du Pont de Nemours & Co.

Mr. Stockfleth discussed the use of polyethylene for paper coatings from the point of view of its inert properties and its resistance to moisture vapor transmission. He contrasted these properties in film formation and in hot melt applications. The resistance to moisture vapor transmission for the most part is the most important use property. Mr. Stockfleth also brought out the stress-strain changes with temperature and showed that the polyethylenes were quite dimensionally stable. Polyethylene is useful at a wide range of temperatures which makes it particularly important in frozen food packaging. In the discussion following the paper Mr. Stockfleth pointed out that it is possible to look forward to the application of polyethylene to paper by means of organosol and aquasol coatings which, of course, are more directly usuable by the paper industry.

2) "The Effect of Compounding Variables on Styrene-Butadiene Latex Used for Protective Coatings for Paper" by M. E. Wendt and William H. Aiken, The Goodyear Tire and Rubber Co.

Mr. Wendt presented this paper and pointed out that such a study was made of the use of a coating composition of a butadiene-styrene copolymer latex, an emulsified wax and a thickening agent. Emphasis was placed on obtaining a coated paper with good grease resistance and a low water vapor transfer rate. Best results were obtained in combination with high melting point microcrystalline waxes. At least 30 parts of wax per 100 parts of latex solids were necessary to give low water vapor transfer rates. The use of a thickening agent improves resistance to passage of water vapor and also reduces the tendency toward foaming. The coating must be heated to a temperature of almost 180°F. to produce a continuous film of coating on the paper. Maximum properties were obtained by fusion at 300°F. In the laboratory with a 30 pound supercalendered kraft paper a water vapor transfer rate of 1 gram per 100 square inches for 24 hours was obtained with approximately 15 parts per ream of coating. The sheet also had excellent grease resistance. Mr. Wendt pointed out that the same results have been obtained with production equipment at half this coating weight, and that these properties were not appreciably affected by creasing the sheet.

3) "The Technology of Styrene Latex Paper Coating" by Eli A. Haddad, Monsanto Chemical Co.

Mr. Haddad reviewed the technology of styrene latices and their application to paper giving details with respect to one type of "lustrex" latex. He pointed out that the formulation of "lustrex" latex paper coating is still in the initial stages of development. One of the main factors apart from plasticizer incorporation is the use of thickening agents and modifiers. Of particular interest is the use of an alkali soluble styrene co-polymer which reacts with ammonia or alkali metal hydroxides to form water soluble salts. Mr. Haddad pointed out that the so called short medium and long formulation differ mainly in the concentration of plasticizer to resin. The difference in composition obviously yields products of varying degrees of flexibility.

4) "The Versatile Vinyl Enters the Paper Coating Field" by A. L. Hatfield, B. F. Goodrich Chemical Co.

Mr. Hatfield described procedure for the formulation and application of vinyl chloride and vinyl chloride copolymer resins as plastisols, modified plastisols, solutions and latices. He placed particular emphasis on latices inasmuch as vinyls in this form can be handled by either an on- or off-machine paper coating process. This flexibility of application makes it possible for the paper producer to coat his own board in the manufacture of grease and moisture proof paper products. Mr. Hatfield cited other applications for both functional and highly decorative vinyl coatings.

There was extensive discussion following the various papers with the audience again remaining intact until about 6:00 p.m. The question of anti-oxidents received considerable attention in the discussion particularly following the papers by Wendt and Aiken and by Haddad. The consensus of opinion was that the question of whether or not an anti-oxident should be added depends primarily on the end use of the products. It was agreed that whenever unsaturated solution is present in the copolymer then the addition of an anti-oxident will be beneficial.

STOCKDALE AT KALAMAZOO

Frank R. Hamilton, Allied Paper Mills, Kalamazoo, Mich., secretary of the Michigan Division of the American Pulp and Paper Mill Superintendents Assn., has announced that Dr. Allen A. Stockdale, staff speaker, National Assn. of Manufacturers, New York, N. Y., is to address the January 18, 1951, joint meeting of the Kalamazoo Valley Section of TAPPI and the Michigan Division of the superintendents association.

Our Outlook and Our Responsibility*

M. C. DOBROW[1]

The business boom of the first 6 months of this year has been "paled" by the defense boom which has developed since Korea.

The Mobilization Program has completely altered the business outlook. So long as the program lasts, business activity will be at high levels, accompanied by full employment, a tight labor market and larger national output. This means a greater-than-normal increase in paper consumption.

The main problems which confront the nation today are the need for increased military strength and security, and the equally great need to keep the economy sound. This involves, among other things, the adoption of sound fiscal policies by our government. Inflationary pressures continue to gather momentum. (Inflationary tendencies are evident almost everywhere — even in the pulp and paper industry.)

Actual expenditures for defense so far have been relatively small but they will, undoubtedly, blossom out into substantial amounts by the spring of next year.

Defense expenditures, which were about $14 billion in the fiscal year ended last June, are being talked of in Washington in such amounts as $30 - $40, or even $45 billion a year for a ten-year period. The dangers of inflation — not tomorrow or the next day — but in the years ahead, are, therefore, grave indeed.

Commodity Prices

Increased incomes of the people and the increased supply of money, with greater turnover, have outrun increased production — hence, increasing prices.

Increased taxation may offset this to some extent, but the increased taxation will have to be in larger amounts — particularly at the lower levels of income.

We may have to have increased excise taxes for luxuries to siphon off the excess purchasing power, if inflation is not to run riot.

Price control might delay or suppress inflation, but only fundamental changes can avoid inflation.

The controversy between the Federal Reserve Board and the Treasury over interest rates is not a pretty picture.

The U. S. has the resources, human and physical — to meet every challenge, but if the inflationary forces are not properly counteracted, they will weaken the whole economic structure.

There cannot be a correction of the inflationary tendencies as long as the government has wasteful expenditures — as long as wage increases try to out-guess price advances and as long as the government supports agricultural prices — all of which forces up the cost of living and creates hardships for those on fixed incomes.

Whether this Administration has the political courage to tackle these problems fundamentally, I do not know. I am sure there are plenty of people in Washington who understand the basic problems. The Federal Reserve Board, under Mr. McCabe, is the only government agency which has had the courage to speak out, thus far.

Federal Reserve Board Index of Industrial Production

We are witnessing, again, miracles of production on the American scene.

The Federal Reserve Board Index which measures physical goods production in the U. S., rose from 183 in January of this year to 213 in September. The gain for the year as a whole, over 1949, will be 14 to 17 percent for durable goods and 11 percent for the so-called soft goods industries.

Some of the durable goods industries, particularly automobiles and housing, will have to be curtailed sharply — perhaps by as much as 25 to 50 percent, to make way for the Defense Program.

Non-durable goods industries, like paper, are likely to continue at high and record levels.

Fine Paper

Now, what about the paper industry?

Demand for writing papers, immediately after the Korean War began, advanced to about 160 percent of capacity. Undoubtedly, much of this was due to "scare" buying. Demand has subsided, but it is still at about capacity.

Unmade orders which were 13 days at the beginning of the year are now 48 production days.

Production and shipments, except for the holiday shut-downs around the 4th of July and Labor Day, have been at record levels and, undoubtedly, the industry will establish a new high record for this year.

Total fine paper production this year will be somewhat over 1,200,000 tons, as against a little over a million tons last year (1,031,000 tons).

Undoubtedly, consumption is at record high levels because of the substantial increase in the general volume of business and the greatly increased number of transactions.

Perhaps, production and shipments are now somewhat in excess of current consumption. But if this is the case, it is by a relatively small amount and it will take several months for the inventories of merchants and consumers to reach an ample level.

I believe that writing paper mills will have no difficulty in shipping all they can make in the fourth quarter of this year and in the first quarter of next year — and there probably will be enough backlog left by March 31, 1951, to carry the high production levels into the second quarter of 1951.

The industry faces serious problems in the rising labor and raw material costs.

New supplies of market pulp are inadequate to maintain the current high volume of paper production, and inventories of pulp cannot be depleted much further.

Spot prices for European pulps are reported to range from $40 to $60 a ton over American contract prices.

Prices for cotton cuttings and rags have made spectacular advances, such as we did not see during World War II. This sharp rise, witnessed since the spring of the year, is similar to the one which occurred in 1920.

White shirt cuttings and unbleached muslins, which were bought for 11½c at the beginning of the year, now cost about 19c.

The basic reason for the sharp advance was the curtailment of the cotton crop by the government and rise in the price of cotton from 29 to 41c per lb.

Overall Industry

Before closing, I would like to give you a picture of the present position of the paper industry as a whole.

You will recall that earlier in my remarks, I made mention of the increase in the physical goods production in this country this year. The gain will be something like 14 to 17 percent for durable goods and 11 percent for non-durable goods industries.

Because consumption of paper does not go along to the same extent as overall production, particularly production in durable goods, I estimate — probably conservatively — that con-

[1] Executive Secretary, Writing Paper Manufacturers Assn.

* Presented at the Fine Paper Session of National Paper Trade Assn. Meeting, October 24, 1950, Chicago, Ill.

sumption requirements in this year of 1950 will be at least 11 percent higher than last year.

You will recall that in 1949, while production was only 20.4 million tons, consumption was more like 21 million tons (of domestically produced paper) as the country was living off inventories which had been accumulated in 1948.

If this assumption is valid, then consumption requirements this year will be somewhat in excess of 23,300,000 tons.

In the first 6 months of this year, 11,690,000 tons were produced. In the third quarter, the production was 6 million tons and production will probably be another 6 million tons in the fourth quarter, making total production for the year approximately 23,700,000 tons.

This indicates some slight rebuilding of pipe lines. When the current record production, which began at about the first of August, has run for 6 months, sometime soon after that, pipe lines — inventories in the hands of consumers, as well as distributors — should be ample and, perhaps, we shall have more normal and better balanced markets.

Conclusion

My advice to you gentlemen is:
Don't sell America short.
Don't sell the paper industry short.

We had 131 million consumers in 1939. We have 152 million now. We shall be adding, in the course of this decade, at least another 17 million consumers. This spells good business for the paper industry.

The Rediscovery in Labor Relations*

J. O. WELLS[1]

I am a little surprised that any of you would come out to hear a personnel man talk, I know of no professional man who is less appreciated among paper mill superintendents than a personnel man. In fact, I have often wondered why we exist at all; but a few days ago I found the answer in an article I happened to read. It said, "Most progressive corporations keep at least one goat for experimental purposes."

As I talk this morning, most of you will probably think that I am shooting a line of pure, unadulterated, malarky. Maybe it is. You may take it for what it is worth. I might say right here that I am not talking about labor relations in our plant, or in any one plant; and anything that I say that may resemble our plant, or your plant, is purely coincidental. Neither am I talking about labor relation in an organized plant or in an unorganized plant.

Personnel Management

I do not propose to talk about personnel administration, its problems, or the devices by which personnel men try to foster good labor relations upon superintendents. I do not believe that there is anything mysterious about this subject, nor any sleight of hand, nor anything just short of witchcraft by which we can solve our labor relation problems. I do not believe that good labor relations can be brought about by a company setting up an elaborate personnel department with all of the gadgets and devices known, and then announcing that they have an excellent personnel department, and will henceforth have good labor relations. (I once knew a personnel man who said that when he got a credit union installed he would have every personnel device he had ever seen. The last time I heard of him, the union had taken over and he was looking for a job.)

Do not think that I do not believe in personnel departments and tools. I do, but they are means to an end, and not an end in themselves. Neither can good labor relations be brought about by an announcement. It is something that must be practiced. Good labor relations, like good music, does not need to be explained; it needs to be rendered. I did not need to tell you these things because I am sure that you have known them all of the time.

I do not expect to enlighten you, but merely hope to kick you on the shins and remind you that the application of some of the things you may already know will pay dividends in good labor relations. I use the word rediscovery because the things I am talking about are the things we once knew; but which, in the turmoil and confusion of the last decade, seems to have been lost or forgotten. During those disturbing times, industry was tempted to substitute platitudes for values, and personnel devices and gadgets for sound labor relations, policies, and practices. Then just as we were about to gain our equilibrium and get the right prospective, we find ourselves going down to the depot or the bus station to serve doughnuts and coffee to the boys who for the third time in one generation are going away to make the world safe for democracy.

As we face the uncertain era ahead, we must remember that it is just as important to have good labor relations in an emergency as it is in normal times. In this era, we must not slip back.

You remember the story of Alice in Wonderland and the conversation that took place as Alice and the Queen approached a tunnel. The Queen said, "This is the tunnel of the Winds, and here you have to run as hard as you can to stay in the same place." Today we find ourselves in about the same situation — facing a tunnel of world winds that threaten to blow us away from the very principles on which our government was founded — threatening to tear us apart, employers from employes. Yes, we must run as hard as we can to stay where we are.

Prestige of Supervisors

It is an axiom that good labor relations must begin with top management. Unless the chief executive is personnel conscious we can expect nothing but turmoil and confusion.

But industry must rediscover that good labor relations are brought about by the person closest to the worker — his immediate supervisor — and for the supervisor to accomplish what is expected of him, he must be and feel that he is a part of management.

Now let us see what happened to the supervisor during the emergency of World War II.

Plants were expanded. Many of the best men were called to the colors. Inexperienced men, who were not yet dry behind the ears, were rapidly promoted to their places. Industry tried to make foremen out of them by some shots in the arm called J.I.T., J.R.T., J.M.T., and other newly discovered miracle drugs.

Members of top management became almost hysterical in trying to accom-

[1] Personnel Director, Ecusta Paper Corp., Pisgah Forrest, N. C.

* Presented at the 1950 fall joint meeting of the Southeastern and Southern Divisions of the American Pulp & Paper Mill Superintendents Assn., held on October 12-14, at the George Vanderbilt Hotel, Asheville, N. C.

plish the things demanded of them. They began to look around for experts. They superimposed a new layer of organization and expected miracles.

When in a few months they had not accomplished the expected results, they put on a new layer and another layer each stratum becoming more securely wrapped in cellophane, until top management was completely insulated from the very people on whom they were dependent for good labor relations. Supervisors felt they were merely a police force whose duty it was to enforce a fiat or a ukase sent down to them by some high brass, and beginning "effective immediately."

They lost contact with top management. They felt like outcasts and sought refuge in their own organization under the sheltering wing of the National Labor Relations Board. They formed their own union and sought to bargain with management; and management suddenly rediscovered that supervisors were a part of management. But the NLRB ran a few titrations and said that they have no voice in management, but are merely a police force whose duty it is to enforce the decrees of management, and that they are entitled to the protection of the act that gives employes the right to organize. Then what happened — the Congress of the United States in body duly assembled passed what is known as the Taft-Hartley act; and, by virtue of Section II, supervisors became *by law* part of management. But you cannot legislate good labor relations any more than you can legislate morals and religion.

Management, in Fact, or by law?

Frankly, in my opinion, it is an indictment against our industrial management when the Congress of the United States has to pass a law to make supervisors part of management. It is merely an injunction or a restraining order against unions to lay off supervisors until management has a chance to put its house in order.

Unless management takes advantage of the breathing spell, and actually rediscovers that supervisors are a part of management and, in reality, make them so, they will again find themselves face to face across the bargaining table negotiating with the very people on whom they depend for successful labor relations.

Making supervisors part of management is not a matter of announcing it; it is not a state of mind; rather it is making him feel it by actual practice — by participation in the formation of company rules, policies, and practices. Whether his suggestions are adopted or not, he feels that he has had a part in it.

Someone has said that "men believe only to the extent that they participate." You cannot make supervisors believe that they are part of management unless they participate. When you make them feel that they are a part of management, you dignify their job.

The supervisor must be kept informed of what is happening. Nothing makes him feel more apart from management than to learn from the union steward or from one of his workers that certain policies and practices have been changed and then two days later receive from management the announcement in a bulletin marked confidential.

The Opinion Research Corporation of Princeton, N. J., in a recent survey, found that 21 percent of the foremen feel more like workers than they do like management. Another 21 percent say that they feel like they are between, and 1 percent said they did not know. This analysis leaves 57 percent who had some feeling that they are a part of management. Does the union steward doubt to what group he belongs? Does he doubt his authority? Does he doubt where he stands?

During the war I went away to take an instructor's course in job relation training so that I could come back and in 10 hours teach our supervisors how to handle labor relations problems. In this course with me were 10 men, nine of whom were from management and one was a union steward (we called him Red). He was there because his union had passed a regulation that no man could become a union steward until he had taken the course in job relations training. Red was to go back and teach stewards in a local defense plant.

The director of industrial relations in this plant had been a friend of mine for several years. Another man in the class knew a superintendent, so we decided to call our friends and see if we could go through this plant. The industrial relations director tactfully explained to me that it was a defense industry and that no visitors were allowed, and that he could not arrange the visit.

The next morning, I reported to the class that our visit was off. The other fellow came in with the same report from the superintendent. Red said, "Let's wait until I talk to the union president tonight."

The next day Red came in and said that at 2:00 p.m. we would meet in the office of the Industrial Relations Director, where we would receive our safety instructions and that we would be guided through personally by the president of the union. I felt sick; I did not want to go; but I could not back out.

You can imagine my embarrassment, and the humiliation of that industrial relations manager and the humiliation of that superintendent as we walked in escorted by the union steward and the union president to embark on a tour that the representative of management could not arrange. I hope you see what I mean. So much for the supervisor and his relationship to management. In a moment we will look at him from another perspective.

Labor Not a Commodity

Another thing that management is rediscovering is the worker as an individual. Management is rediscovering that it does not employ personnel—a sort of mystic thing around which we create statistics. Labor is not a matter of statistics and charts, not a matter of logarithms, or something to be calculated on a slide rule. It is not a matter of human engineering. Labor is individual people with feelings and fears, and hopes and ambitions, each with his own individual dignity, his own individual opportunity, his own hope and his own destiny.

A few years ago, someone had a bright idea. The suggestion was made that to find out what labor wanted we might ask labor itself. As a consequence, numerous surveys were conducted. The results were shocking.

Labor's Desires

Management had always thought that wages and security were the first concern of labor. In many of these surveys, supervisors were asked to put in the order of importance the things that labor desired; and labor was asked to list the things in order of importance they desired. The shocking part was that the things supervisors listed differed greatly from what the employees listed. Supervisors list good wages and security as first in importance. Employees listed them down the line. Other things were more important.

Ahead of wages, the employee wanted credit for what he does. It kills his morale, his spirit, and his ambition for some supervisor to grab his ideas and go running to top management and say, "Look what I have done."

Someone has humorously defined executive ability as the ability to get credit for what someone else does. The sad part is that some of our workmen may be justified in accepting this definition as the real one.

Try to tell a machine tender that the machine makes the paper; that he is there to operate the machine; that he has nothing to do with the results; and you will have a new experience in life. He prides himself on his ability as a paper maker and not as a machine tender.

The worker wants credit whether it be recognition of his skill in the nature of a memento reward, his picture in the house organ, a pat on the back from the supervisor, or to have his name in small type buried deep in the voluminous report of the patent office.

There is the story of the old Scotch gardener who was skillful at trimming hedges with uncanny accuracy and artistry. He had just acquired a pair of power hedge shears. While using them to trim a hedge, an acquaintance came by and said, "It certainly goes much faster that way doesn't it?" The old Scotchman replied, "It is much faster but I do not like it. This way it sort of leaves me out."

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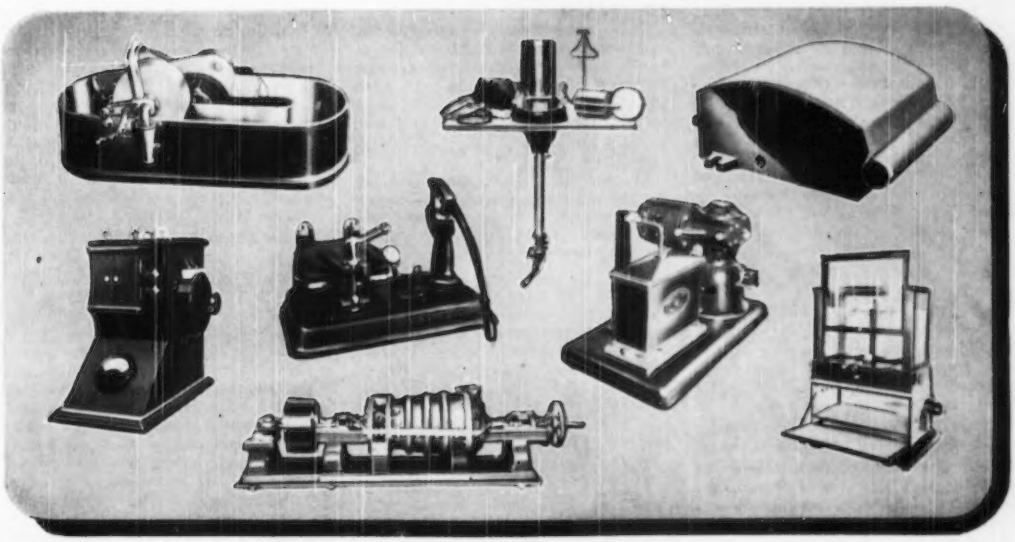


VALLEY *Laboratory Equipment*

Ahead of wages is the desire of the worker for a feeling of importance—to feel that he is somebody. He wants to feel that he is a part of the business; that he is contributing to its success; that he is appreciated. If he feels that he is a statistic on the pay roll, his morale slumps and his job suffers. He wants to believe that he is important enough to be told what is going on what changes are being made that may affect him on the job.

This matter of feeling important is one of the principal motivating factors in all we do. Why do you think I am here? It is not because I have any burning desire to improve labor relations. It is not for any pecuniary reward, because "Slim" R. C. Bullock is not paying me a cent. It is the same reason that he is serving as Chairman of your organization. It is the same reason that you served as president of your civic club or that you usher in your church or want to drive a shiny new automobile. It is the same reason you want a parking space with your name on it at the plant. It is the feeling of importance.

There is an organization which each year selects the Teacher of the year on the basis of letters written by the pupils. The very first year this award was made, do you know who won it? It was not won by a teacher from New York or Chicago or Philadelphia or Atlanta—it was won by a teacher in a one teacher school in Mississippi. It was won on the basis of a letter written by a sixth grade pupil. Here is what the letter said: "I think my teacher is the best because she makes me feel like I am somebody." Do you see what I mean?

The worker also wants security. He wants to know that he has a steady job with a regular payday, and that he can buy on the installment plan with the confidence that he will be able to meet his payments. He wants the satisfaction of knowing when he has given the best 20 years of his life to a company that he can not be kicked out by the whim of a foreman who had burnt toast for breakfast.

Our supervisors today are suffering from the sins of their predecessors, when a foreman could kick a man out at will, regardless of his length of service, and retain a friend on the payroll.

The employee wants security to provide for him in case of misfortune. He wants to know he will have an income if his earning power should be cut off. And this matter of security becomes increasingly important in his declining years. He wants to feel that when he lays down his work in the twilight of life he will not be dependent on relative or become an object of charity. He wants to have no dread of these last years, but to be able to say with Browning, "Grow old along with me; the best is yet to be; the last of life, for which the first was made." Industry has already rediscovered this desire and in most cases has made ample provisions.

Importance of Wage Rates

Now we come to the matter of wages. It is difficult to say just where it falls in order of importance. It is one of those peculiar things that has two values. Men will suffer all kinds of hardships and endure the worst of conditions to get enough to feed a hungry family—to get those things that are necessary to hold body and soul together. Yes, the worker wants food and clothing and the like to protect him from hardships; but beyond that wages begin to slip in importance, and the desire of what the psychologist calls ego—satisfaction begins to come in and take over.

The worker will begin to try to keep or improve his standing in the community; to get recognition as an individual; to get praise for work well done, and the approval of his fellow man. Yes, it is true that he wants a fair wage for the work he does. He wants as much, or more, than the going rate for the industry or his ego is injured. He wants enough to own a home, a car, to send his children to college, to meet sickness and emergencies, and to enjoy some of the luxuries of life; but, beyond a certain point, this ambition stems from the desire for security and ego-satisfaction.

If you think money is the most important thing, injure a man's pride or do him an injustice, then watch him spend the last cent he has to get even. Lawyers will tell you that some of their most lucrative fees come from spite lawsuits.

Some of our most progressive experts in the field of labor relations have rediscovered that wages is not the most important thing. As a result, they are now introducing what they call non-financial incentives — working for pride, for a feeling of importance — to excel.

Many workers strike or parade under the guise for a demand for wages increase when it is not the real cause of it at all. There are deeper causes; but they are hard to explain to the public.

Wages and security usually have a more popular appeal to the public, and to many employees who are not affected by a particular gripe. In a recent strike in a small plant in Illinois, someone asked the union organizer what the real reason for the strike was. He replied, "It wasn't the 15c that we asked, or the 5c that we got. The real issue was that we had to convince that guy that he couldn't be a little dictator any longer."

Someone once asked Samuel Gompers, long time head of the A. F. of L., what labor really wants and the reply was "more." What did he mean? He meant more of whatever is needed to complete the ego-satisfaction at any given time. When prices are soaring, workers want higher wages; when old age looms, they want security; when conditions are stable, they want praise, recognition, fair treatment and a feeling of importance. No, the worker's wage is not the most important consideration.

The worker wants a good boss. As I stated a moment ago, the foreman is the most important factor in labor relations. He is the key to the whole problem. A man will suffer undue hardships and will put up with all kinds of working conditions, even low wages, if he has a good boss. And what does he want in his boss. He wants an understanding boss in whom he has confidence, to whom he can take his troubles and know that we will find a friendly reception and a sympathetic ear, to whom he can unload his burdens and feel that he will find help and encouragement. I think we might make some progress in labor relations by changing the title of supervisor to understander.

Supervisory Characteristics

The worker wants a boss who does not have what we may call *bigshotitus*. Have you ever cooled your heels waiting to see a supervisor or a minor executive who kept you waiting not because he was busy but to impress on you with his importance?

Former Governor Stone of Florida tells of an incident which changed the whole course of his life. He was working for a railroad and his first promotion came. He was made station agent at a small Mississippi crossroads. Two negros came in to ship a package by express. He let them cool their heels while he pretended to be busy.

Finally, he got around to them and examined the package. He said it was not properly wrapped and sent them out to wrap it over. The second time they came back. It was not yet securely tied, so they went away again. Finally, he accepted it for shipment. As the negros walked away, he heard one of them say to the other, "It seems its always that way—the littler the station, the bigger the agent."

I am afraid that it is too often true with our supervisors. "The littler the station, the bigger the agent." I think it was Robert Quillen who said, "You can always tell the size of a man by the size of the job it takes to give him the big head."

The worker wants a boss who will face his responsibility and refuse to pass the buck, who will stand up and tell him why and not because the personnel department or main office said so. He wants a boss who will get all the facts before he makes a decision—one that will give him heck when he is wrong but will give him a pat on the back for a job well done. I think if I were allowed to write another beatitude, I would say, "Blessed is the supervisor who has learned that a pat on the back is worth two kicks in the pants."

The worker wants a boss who has

confidence in his own ability, a boss who is not jealous of his subordinates, who is not afraid to give credit to the workmen for fear he may reduce his own stature. He wants a boss to whom he can offer suggestions and know they will be received in an understanding spirit and not in the spirit of "You trying to tell me how to run my job." He wants a boss who is a leader—not a driver, who can get results and maintain his prestige without having to assert his authority.

I remember a story that came out of World War II. On a hot summer day in South Carolina, a sergeant was putting a bunch of Negro recruits through the manual of arms. When he gave the command, "Eyes Right"; an unidentified voice in the rear ranks squeaked out "You sho is, you'se a sergeant." He wants a boss who is right, not because he is a sergeant but because he is a leader—one who does not have to pull his rank.

The worker respects a boss who can demand and get a full days work for a full day's pay. Ray Millholland, in his book entitled "Payday," tells of the funeral of the master mechanic known to his workers as the little Dollar Bill Boss. Big, rough-handed mechanics gathered about the open grave. With dry eyes of honest grief, they listened to the thud of the falling earth. Then a big bullnecked, walking delegate of the union, whom the Dollar Bill Boss had fought successfully for 30 years, to his last breath, spoke what was in the heart of every mechanic present—"If you ever made a full payday with him, you could say you was a real mechanic."

The worker wants an interesting job, a job where he can feel that he has accomplished something, a job where he can find an outlet for his ability. He wants to know that his job has a purpose. If you put a man to carrying water from one branch to another, regardless of the wages and benefits, you will find he will quit in disgust. There is a great deal of difference in the morale of the workman who is laying brick, and the man who is building a house.

The worker wants a job in which he is interested—where the minutes do not drag into hours, and the monotony does not kill his spirit. I think I shall always remember an incident that happened when we were making an addition to our plant. Concrete was being poured in the second story of a building. The concrete mixer was down on the ground; workmen were going up and down the ramp like ants. I noticed that one fellow always came back pulling his wheelbarrow upside down behind him. While he was waiting his turn at the concrete mixer, I said, "I noticed as you came back that you pulled your wheelbarrow upside down behind you. Does it roll easier that way?" He replied, "No, it's not that, but I get so tired of looking at the damn thing."

Yes, the worker wants a job that affords an opportunity for advancement. He may know that he will never reach the height to which he aspires, but it is a great incentive to know that there is a goal toward which he can strive. I think, again, it was Browning who said, "Oh, that our reach should exceed our grasp, or what's a heaven for."

The worker wants to always be reaching for something that he has not grasped. Kill a man's ambition and you had better fire him. In short, he wants a job in which he can find contentment and satisfaction, where he feels that each new day is a new challenge and he can find it in his heart to say, This is my blessing and not my doom."

Fair Treatment a Necessity

The last thing that I will have time to mention in the rediscovery of the worker as an individual, is that he wants a square deal, and he wants his fellow employees to have a square deal. He wants fair treatment in wages paid, in hours and work assigned, fair treatment in the enforcement of the rules. He is not as concerned as to what these things are as he is to the impartiality of their enforcement. If he thinks he has gotten a raw deal, the matter of wages, security, the good job and all your pension plans and fringed benefits fade into oblivion as the desire to get even and the spirit of revenge arise and take over.

The worker wants to know that he can bring his grievance to an impartial tribunal where he will receive justice. He wants to be able to present his case, and to fight back with impunity—and, if management does not provide these facilities, he has heard of other media; and he will go to them for a means of redress.

Yes, there are other things we must rediscover, but the things I have mentioned are basic. Management that has not rediscovered these things need not be surprised if it finds its employees listening to strange voices, to strange doctrines, and to strange ideologies. It may find that it has built a house on shifting sands.

The more I study this matter of labor relations and read the cases in our labor relations court, the more thoroughly I am convinced that every employer has the type of labor relations he deserves.

A few years ago, there were those persons who would pit southern labor against southern management. (It was to be called Operation Dixie, and it was to be a fight to the finish.) Operation Dixie bogged down. It bogged down in our plant. It bogged down in many of your plants. It bogged down throughout the South.

It bogged down because its intelligence department did not know that southern management had rediscovered the worker as an individual. It bogged down because it did not know that southern labor was not yet ready to sell its birthright for a mess of pottage. It bogged down because it did not know that southern management and southern labor were resolved to walk hand in hand in dignity, in justice and in right.

I notice from the papers that Operation Dixie is to be launched again. It will bog down again and again and again as long as we rediscover and apply in our labor relations the principle expounded in the Sermon on the Mount by a humble carpenter, nearly 2000 years ago, when he said. "Therefore all things whatsoever ye would that men should do to you, do ye even so to them."

I have already bored you too long; but a few weeks ago I ran into a poem which expresses what I have been trying to say. Therefore, I can not go without leaving it with you. Its author is unknown, but here is the poem—entitled "The Old Manager Speaks."

The Old Manager Speaks

I've handled a pick and a shovel,
I've sat at a bench in my time,
I've done heavy work in the heat and
the murk,
I've known all the sweat and the
grime;
And so, when some frosty-eyed expert
Talks "Labor" as if it was coal,
"A Commodity"—well, I just choke
for a spell
Before I regain my control.

Plague take all this dope economic
That plots human toil on its charts,
I tell you that "Labor's" your friends
and your neighbors,
It's folks that have bodies and hearts.
It's fathers and brothers and husbands
With mothers and sweethearts and
wives,
Who love and who hate and who
dream and who wait,
It's real people living their lives.

Now maybe I'm mossbacked and rusty,
But here's how it lines up to me;
Statistics will aid in the plans you
have made,
They're useful to quite a degree,
But all of your lore scientific
Will fall down again and again,
Unless in your brain this one fact you
retain,
That "Labor" means flesh and blood
men.

In brief, it's a problem that's human,
No soulless "Commodity" stuff,
And the very best plan I have happened to scan
Is just to be human enough;
And when it is finally settled
(I fear I won't be here by then)
It won't be by art of a book or a chart,
But Men dealing fairly with Men.

MAY RAISE NEWSPAPER PRICE

OTTAWA.—It is understood that some Canadian newspapers are considering raising prices of their copies due to rising costs of newsprint and other production expenditures.

Corrosion—VII of Series

The Use of Nickel Containing Alloys in the Pulp and Paper Industry

H. O. TEEPLE[1]

During the past twenty years, many improvements have been made in paper quality, paper production, paper machinery. Also during this period, the use of nickel containing alloys has increased manyfold. While it cannot be claimed these gains in paper making have been due entirely to the increased use of nickel containing alloys, it is believed that nickel as an alloying element has made a substantial contribution. The combination of good mechanical, physical and corrosion resisting properties of nickel containing alloys has permitted improvements in machine design, in process design and in lower maintenance costs which are largely responsible for the gains mentioned initially.

The nickel containing alloys discussed here are divided into two broad groups, namely, the nickel and nickel base alloys, such as Monel, Inconel, the Hastelloy Alloys and the austenitic stainless steels, such as Types 304, 316 and others. In addition, there is some discussion of the nickel alloyed cast irons, such as the Ni-Resists. In a table appended, nominal compositions of these materials are given.

The use of nickel and nickel alloys in the pulp and paper industry has been reviewed previously.

De Fries (1) discussed some properties of chromium-nickel steels and indicated a few applications in the pulp and paper industry. Lee (2) while confining his remarks to sulfate mills, discussed the use of various corrosion resisting metals and alloys for applications throughout the plant. Among the materials discussed were Monel, Ni-Resist, Types 304 and 316 stainless steels and Hastelloys. Faunce (3) discussed the use of austenitic stainless steels in the pulp and paper industry based upon a rather complete survey made with respect to twenty-two kraft mills in the South. LaQue (4) listed some applications of corrosion resisting metals and alloys in the pulp and paper industry. The materials considered were Monel, the austenitic stainless steels, Ni-Resist and silicon bronze. Vande Bogart (5) discussed primarily the use of protective coatings in the pulp and paper industry but he also discussed the use of stainless steels and low and medium alloyed

materials. Barnes (6) discussed the use of useful metals and alloys as a means of improving maintenance which in the long run would conserve strategic metals. A discussion (7) was given of the engineering advantages of nickel and nickel-base alloys in the pulp and paper industry. The use of special alloys was described (8) in lowering maintenance costs through the application of these alloys in corrosive environments encountered in the pulp and paper industry. Barnes and Clarke (9) described the use of nickel and nickel alloys in pulp and paper industry. This discussion of the nickel containing alloys will be divided into two major groups: their applications in pulping processes and their applications in paper making.

In discussing pulping processes; the alkaline processes, soda and sulfate, the acid processes, calcium base and soluble bases such as magnesium, ammonium and sodium (neutral sulfite) and the groundwood process will be considered. Because of its related nature, by-product chemical recovery will be considered in this section.

In discussing paper making, the handling of the pulp from the digesters through the paper machine will be considered. This will include bleaching. Also in this section the paper board operations will be discussed.

Alkaline Pulping

Soda Pulping

Corrosion problems occurring in the soda process, one of the two alkaline processes, are usually not severe. Carbon steel has been used for the digesters quite successfully and service lives up to forty years have been reported. Similarly carbon steel and cast iron are useful in liquor recovery operations. Monel tubes are used in the strong liquor effects of the black liquor evaporators.

Inspection of Monel tubes after 101 months service in the strong liquor effect of a soda black liquor evaporator indicated no measurable amount of corrosion had occurred, i.e., the final wall thickness was still within mill tolerance of new tubes. Similar results were obtained from measurements on a tube after 47 months service. Carbon steel tubes in this service gave a life of 9-12 months.

Ni-Resist has proved to be an economical alternate for cast iron in critical services. The selective use of these nickel alloyed corrosion resistant materials will usually solve economically most of the corrosion problems arising in the soda pulping operation.

Sulfate Pulping

In sulfate or kraft pulping, the other of the two alkaline pulping processes, the corrosion problems encountered are considerably more severe than those of the soda process. These problems are important not only on the basis of more aggressive corrosion environments but also on the basis of the widespread use of this pulping process.

One of the most important corrosion problems which has confronted the kraft pulping industry in recent years is that of the corrosion of carbon steel digesters. Carbon steel has been employed rather successfully for sulfate digesters for quite a number of years. However, in recent years increased corrosion and short service life of digesters were reported by kraft pulp mills. The mills encountering these difficulties were geographically scattered, hence, the corrosion problem appeared to be industry-wide rather than localized. A number of mills apparently have not encountered this problem but it does not follow that the problem does not exist for these mills.

In a T.A.P.P.I. Special Report (10) a survey was made of 21 mills in the South, North and Pacific Northwest. It was reported, among other things, that digester age varied from 2 to 24 years.

Collins (11) presented an annotated bibliography of corrosion of sulfate digesters. Among the articles which

[1] The International Nickel Co., Inc., Development and Research Div., Corrosion Engineering Section, 67 Wall St., New York 5, N. Y.

Substitutions ARE ALWAYS TROUBLESOME

President: Corbin, we have been experimenting with some different sources for our supplies of pulp recently. Have you noticed any differences in how they work up in the beater or on the machine?

Superintendent: It's my business to notice everything that comes into this mill and to see that everything that goes out is O. K.

President: The substitution of one type of pulp for another hasn't caused any trouble?

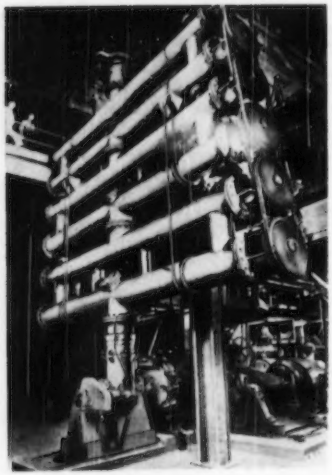
Superintendent: Substitutions are always troublesome. But we can lick the troubles that come from any substitution with one exception—HAMILTON FELTS. I'm through experimenting with felts—have tried them all. For every press on every machine there is a Hamilton Felt that does its work better, faster, and at lower cost.

SHULER & BENNINGHOFEN, HAMILTON, OHIO

Miami Woolen Mills

Hamilton Felts

Established 1858



The reaction chambers of Chemi-pulpers, such as shown above, manufactured and distributed by Paper and Industrial Appliances, Inc., New York, N. Y. are fabricated of 20% Lukens Type 304 Stainless-Clad Steel. Fabricators are Alloy Steel Fabricators, Division of Steel and Copper Industries, Inc., and Stainless Fabricators, Inc.

he reviewed were several on the use of chromium-nickel-stainless steels:—

Johnson (12) described the lining of a kraft digester in Australia with 18-8 stainless steel. Johnson (13) reported a trial welded chromium steel lining but found that failure occurred due to stress corrosion cracking. Jominy and Archer (14) described a thermal shocking test procedure for a shop applied spot welded lining of 18-8 stainless steels. Schiel (15) reported that alloy lined digesters were giving good service and reviewed field work in testing alloy specimens and stress corrosion of some samples was reported. Schmitz (16) discussed the advantages of using alloy-lined digesters. Schoene (17) was of the opinion it was dangerous to line digesters with sheet metal due to differential coefficients of thermal expansion.

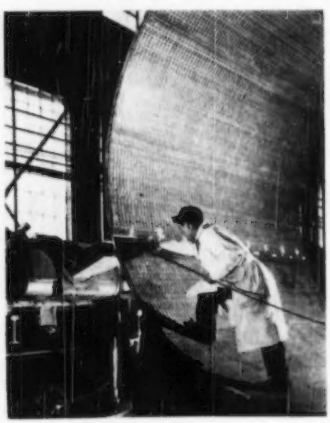
In a general review of corrosion problems occurring in the manufacture of alkaline pulp, LaQue and Clarke (18) included a brief review of the developments and the studies to date on the matter of stress-corrosion of otherwise useful materials of construction for sulfate digesters. The austenitic stainless steels are quite resistant to corrosion based upon rates obtained by weight loss measurements. However, these alloys are susceptible to stress corrosion cracking under certain specific circumstances. These conditions appear to be the accumulation of concentrated alkaline liquors in crevices, such as between the shell and the lining or back of a nozzle. It has been found (19) that Inconel is free from embrittlement under these conditions by concentrated white liquor or a mixture of white and black liquors. This important factor coupled with two others, namely, the low weight loss corrosion rate for Inconel in sulfate cooking liquors and the quite similar thermal expansion coefficient to that of carbon steel, would indicate that Inconel would be a highly desirable alloy for either shop or field applied linings, for sulfate digesters. The use of Inconel clad steel would be equally advantageous.

To indicate the resistance of Inconel and the austenitic stainless steels to corrosion by sulfate pulping liquors, the data shown in *Table I* are presented.

Further, a test of 310 days duration in a West Coast digester, Inconel showed a corrosion rate of 0.0006 ipy. Subsequent inspection showed no pitting and no embrittlement after 180° bend tests.

On the basis of these data, it would appear that the austenitic stainless steels and Inconel would be useful for liquor heater tubes. Wilcox (20) in a discussion of kraft digester circulating systems mentioned the use of 18-8 stainless for various units in the system, such as strainer plates where erosion and corrosion are problems. In heaters he mentions the use of alloy tubes and indicates that single pass heaters are desirable from the standpoint of pressure drop but thermal expansion coefficients generally limit the use of alloys for this type of heater. It is to be noted that Inconel would be desirable alloy for this purpose based on its good resistance to corrosion and approximately equal coefficient with that of carbon steel.

That corrosion in sulfate pulping is not localized geographically is indicated by a detailed review of corrosion problems by Von Essen (21). He reported the results of experiments made with different types of steels for digesters and evaporators in Swedish pulp mills. The presence of silicon in steel reportedly decreased its resistance to corrosion while 1-2 percent nickel or cobalt improved the resistance. The use of stainless steels is mentioned to alleviate corrosion problems. He also reported black liquors from different mills showed great variations in corrosiveness. This latter fact is also reported by LaQue and Friend (22).



The main weld seam of one of the shell sections of an Inconel lined digester is exrayed.

Funk and Wyche (23) discussed the use of stainless clad steel for digesters. Johnson (24) gave a detailed review of the service life of twenty digesters in an important kraft mill in the South. His results indicated that original digesters which normally gave 12-14 years service and newer digesters installed in 1947 and 1948 appeared to be corroding so rapidly that a life of only 3-5 years is all that can be expected. He concluded that the problem of digester corrosion seems to be one not easily solved by one mill and further study is indicated.

This latter point was well discussed by Gauke and Scheil (25). These

TABLE I

SUMMARY OF PLANT CORROSION TESTS IN SULFATE PULPING

A. Specimens exposed 35 days on liquor side of an indirect heater. Temperature 300° F. avg. Flow rate 4 fps.

Material	Indicated Corrosion Rate, ipy *
Inconel	0.0003
Type 304 Stainless	0.0001
Carbon Steel	0.077

B. Specimens exposed 35 days on liquor side of an indirect heater. Temperature 300° F. avg. Flow rate 4 fps.

Material	Indicated Corrosion Rate, ipy
Inconel	0.0005
Type 304 Stainless	0.0001
Carbon Steel	0.035

C. Specimens exposed 31 days in blow end cone of a rotating 2½ ton digester. Temperature 350° F. max.

Material	Indicated Corrosion Rate, ipy
Inconel	0.0007
Type 302 Stainless	0.0002
Type 316 Stainless	0.0006
Type 317 Stainless	0.0006
Type 347 Stainless	0.0003
Carbon Steel	0.0006

D. Specimens exposed 31 days in blow end cone of a 3½ ton digester. Temperature 350° F.

Material	Indicated Corrosion Rate, ipy
Inconel	0.0009
Type 302 Stainless	0.0002
Type 316 Stainless	0.0006
Type 317 Stainless	0.0010
Type 347 Stainless	0.00035
Carbon Steel	0.056

E. Specimens exposed 75 days in the gas-off line to Kraft digester fumes. Temperature 200° F. avg.

Material	Indicated Corrosion Rate, ipy
Inconel	0.00001
Type 304 Stainless	0.00001
Carbon Steel	0.00003

F. Specimens exposed for 98 days in head of liquor heater. Flow rate 2400 gpm. and temperature 344° F.

Material	Indicated Corrosion Rate, ipy
Type 304 Stainless	0.0005
Type 316 Stainless	0.0008
Inconel	0.0009
Carbon Steel	0.095

* Ipy = inch per year.

authors presented the results of several cooperative test programs illustrating the desirability and in fact the necessity of close cooperation between the pulp mills and the equipment fabricators. The end result of such joint endeavor is the choice of the right material to withstand specific corrosion environments.

Whitney (*26*) in a survey of corrosion problems occurring in the pulp and paper industry mentioned that corrosion of sulfate digesters has been sufficiently severe to make other materials of construction such as the stainless steels attractive. He also mentioned that the corrosion problems encountered in the kraft industry are more specific than general in nature. This point, of course, ties in well with those of Johnson (*24*) and Gaulke and Scheil (*25*).

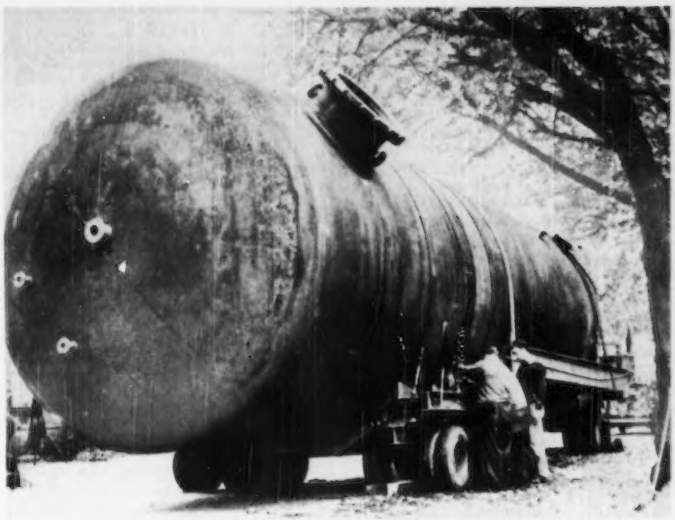
Sawyer, et al, (*27*) in a comprehensive review of the operations of a large West Coast sulfate mill reported the use of high silicon steels in rotary digesters in preference to carbon steel with a subsequent service of 12 years compared to 10 for carbon steel. It is reported further that six such digesters are lined with Type 405 stainless steel (*28*).

Since the kraft cooking liquors are alkaline sulfides, it is believed the usefulness of carbon steel is due to the deposit of a relatively insoluble sulfide film. Whether the operating conditions have changed sufficiently within the last several years to prevent this desirable scale formation is a point of conjecture. Many mills reportedly have not changed their operating conditions yet troubles have been encountered. It is a known fact that kraft production has increased both horizontally and vertically since the war and it is not known whether digester service life as measured now in months or years to compare with prewar experience is based on tons of pulp produced per digester-year, which would appear to be a reasonable basis for comparison.

It has been claimed that the composition of the steels used has changed which prevents the formation of the sulfide film. This is a difficult point to establish since there has been little work done in this respect. It has been mentioned in one case (Von Essen—*21*) that silicon is harmful and in another (Sawyer et al—*27*) that silicon is beneficial.

It would appear that at best, carbon steel in the light of present day practice may not be too desirable. It is true the first cost is relatively low but the alloy does not appear to be sufficiently foolproof to satisfactorily resist attack by the variety of pulping operations now used within the kraft industry. For example, the sulfide film would be expected to be susceptible to damage by abrasion, i.e. heavy chip movement, liquor velocity, i.e. circulation, cooking liquor composition variations, and other commonly encountered conditions prevailing in a sulfate pulping operation.

Some use of Type 405 stainless steel has been reported (*28*) for digester linings. While low corrosion rates are exhibited by this steel during test exposure, it is believed this steel would perform in service much like carbon steel. Its usefulness would depend upon the formation and maintenance of a tightly adherent sulfide scale. The alloy content of the steel is apparently not high enough for it to be resistant to attack over a wide variety of conditions to which sulfate digesters apparently are subjected. Some trouble has been reported in the heads of the digesters, i.e. in the vapor phase where this steel has been used, and the trend has apparently been in the direction of the use of austenitic alloys, stainless and Inconel and away from the ferritic type. The austenitic stainless steels, if the vulnerable stress-corrosion cracking problems can be solved, or preferably Inconel, would appear to be better choices in the long run.



A Type 316 Lukens Stainless-Clad Steel digester, part of a Merritt-Chapman Scott Corp. project, is shown en route to Dexter Sulphite Pulp and Paper Co., Dexter, N. Y. Lukenweld, division of Lukens Steel Co., designed and constructed the unit.

Further, on the basis of the composition of the alloy itself, Inconel should be quite useful because its high nickel content would provide good resistance to corrosion by the alkaline solutions and its appreciable chromium content would impart good resistance to attack by the sulfide content of the liquor.

It is believed that if a careful enough evaluation of the problem is made, it probably is not too difficult to economically justify the use of these highly alloyed materials.

In black liquor recovery in the kraft process, the corrosion problems which formerly were quite troublesome have largely been solved by the judicious use of suitable alloys. One of the more bothersome spots was the corrosion encountered in the strong liquor effects of the black liquor evaporators. The almost universal practice of using 18-8 stainless steel, i.e. Type 304, tubes in these effects is indicative of the solution of this problem. Bergstrom and Linetz (*29*) listed improvements in evaporator engineering particularly in the kraft industry. The use of 18-8 stainless tubes and clad steel tube sheets as well as stainless clad for body construction, particularly at the top, is emphasized as being a large contribution to the extended service life of the improved evaporators. Further, it is reported that the use of chromium plated (outside) tubes in the latter effects of the evaporators to reduce sulfide corrosion on the vapor side. One mill has installed 18-8 tubes in the fifth effect for this reason. The use of solid alloy of the special austenitic stainless steel types, such as Worthite or Durimet *20*, is mentioned as desirable for transfer pumps in the liquor recovery system.

These authors mention that although there have been some failures of the austenitic stainless steels in certain instances, by and large the service performance has been good.

Rubush and Seavoy (*30*) pointed out the desirable use of 18-8 stainless steel tubes in sulfate black liquor evaporators and discussed the use of this alloy in curtailing high rates of corrosion usually encountered in carbon steel evaporators. It was also mentioned that 4-6 percent chromium iron alloy tubes were found to be generally inferior to plain carbon steel tubes. This is further exemplified by actual exposure of 10 gauge 5 percent chromium 1.5 percent silicon 0.5 percent molybdenum tubes in the strong liquor effects. These tubes lasted 6½ months and carbon steel in comparison lasted 7 months. Several years ago

a considerable amount of experimental tube tests were made by various pulp mills wherein various proprietary low alloy steels were used. In general, the indicated service life of these various alloy tubes did not prove to be economical in comparison either with carbon steel or 18-8 stainless steel. In a few instances, 5 percent nickel steel did prove to be economical. This did not extend, however, from one plant to another which was believed to be indicative of the varying aggressiveness of the black liquors from mill to mill. It is to be noted (*29*), however, that one mill has installed 9 percent nickel steel tubes in the second effect. After some 23 months operation, measurements indicated a lower corrosion rate than for carbon steel. However, final evaluation of the performance will not be available until after the tubes have been removed at the end of their service life.

It is to be noted that Inconel tubes would be equally satisfactory for black liquor evaporators but cost comparisons with 18-8 stainless indicate the latter alloy is more economical for this purpose.

An article (31) in describing the chemical recovery operation in a large new kraft mill in the South, mentioned the use of stainless steel construction in each of the first effects of two six-body five-effect evaporators. The lower portion of the vapor bodies are stainless, the tube sheets are stainless clad and the tubes are stainless. Also mentioned is the use of the special austenitic stainless steels, Worthite, for black liquor transfer pumps.

McIntosh (*32*) described corrosion problems occurring in kraft mills and discussed various materials of construction usefully resistant to corrosion by the described environments. He mentioned the use of stainless steels, Monel, Ni-Resist and gave some service life data. Further, Jones (33) presented several years ago a survey of pipe and tube materials in sulfate pulping. A cost accounting of alloy piping against carbon steel piping is given for a typical sulfate mill. The results indicated more extensive use of stainless steel, Monel and other corrosion resistant alloys would have been justified by obtaining longer service life and lower maintenance costs. Hicks (34) described the use of 18-8 stainless steel for rotameters, for sulfate black liquor. Collins and West (35) described corrosion problems associated with jets in a Venturi atomizer and mentioned that in certain instances Type 304 stainless steel was not satisfactory but more highly alloyed steels appeared to be so.

To illustrate the suitability of the 18-8 stainless steels in the handling of strong sulfate black liquor, the corrosion data in *Table II* are shown. Values for other materials are given also for comparison.

A serious corrosion problem has been reported by Roberts et al (36), Patterson and Lloyd (37) and Hand (38) which concerns difficulties encountered in the operation of Cottrell precipitators in kraft recovery units. The corrosion appears to be due to the presence of large quantities of chlorides and sulfur dioxide in the gases. No doubt the chlorides are present resulting from the floating of the logs to the mill in salt water and the use of salt water as process water either in debarking operations or other preliminary washing operations. These conditions could be quite aggressive and considerable plant corrosion test work would seem to be indicated.

A corrosion problem which has been bothersome at times in liquor recovery is associated with smelter spouts. In many cases carbon steel will prove adequate for this service if clean cooling water is used, such as steam condensate. If under these circumstances, troubles are still encountered then the use of either Type 309 or Type 310 steel in conjunction with steam condensate will usually solve the problem.

While some corrosion problems have come to light in green liquor handling they have not been of a severe nature. Generally, the use of the commonly available corrosion resisting metals and alloys will alleviate these problems to a considerable extent. Monel, Inconel, the austenitic stainless steels and Ni-Resist are all suitable, as indicated by the corrosion data given in *Table III*.

In causticizing operations, carbon steel generally will suffice for most of the equipment. However, in the handling of the green liquor, particularly after the lime has been added, scaling teds to form on the inside of pipe lines, tanks, pumps and fittings. This scale is primarily calcium carbonate and it is necessary to remove the scale from time to time. It is reported by Sawyer et al (*27*) that increasing use is made by Type 304 stainless in green liquor handling. The stainless would not be harmed too much by virtue of mechanical cleaning. However, if dilute hydrochloric acid were used as is frequently the case for lime sludge filters, Monel would be a much better choice of material. Serious pitting of the 18-8 stainless can occur when exposed to hydrochloric acid which probably would lead to early failure. Monel is quite resistant to attack by dilute hydrochloric acid and hence is preferable to the stainless. It is for this reason, principally that Monel is used in the construction of lime mud filters.

Reference should be made to Clemens (39) rather complete description of modern recausticizing plant practice. A flow sheet is presented and each portion of the process is discussed in detail with frequent reference to materials of construction, including the austenitic stainless steels.

(To be continued in November 10th issue)

TABLE II

SUMMARY OF PLANT CORROSION TESTS IN SULFATE BLACK LIQUORS

A. Specimens exposed in vapors in flash tank from evaporator, 121 days duration. Liquor temperature 325° F.

Material	Indicated Corrosion Rate, ipy
Type 304 Stainless	0.0001
Type 316 Stainless	0.0002
Inconel	0.0001
Carbon Steel	0.033
Monel	0.015

B. Specimens exposed 68 days at top tube sheet of the finishing effect. Liquor temperature 258° F. avg. and consists of 45-50% solids.

Material	Indicated Corrosion Rate, ipy
Type 302 Stainless	0.0001
Type 316 Stainless	0.0002
Type 309	0.001
Type 310	0.0001
Inconel	0.0001
Carbon Steel	0.0020

C. Specimens exposed for 92 days in storage tank holding 22° Bé black liquor at 195° F.

Material	Indicated Corrosion Rate, ipy
Type 316 Stainless	0.0001
Type 304 Stainless	0.0001
Inconel	0.0001
Carbon Steel	0.0020

D. Specimens exposed for 39 days in storage tank holding 32° Bé black liquor at 200° F. avg.

Material	Indicated Corrosion Rate, ipy
Type 304	0.0001
Inconel	0.0001
Carbon Steel	0.010

TABLE III

SUMMARY OF PLANT CORROSION TESTS IN SULFATE GREEN LIQUORS

A. Specimens exposed 90 days in distribution box. Temperature 190° F.

Material	Indicated Corrosion Rate, ipy
Monel	0.0003
Inconel	0.0001
Type 304 Stainless	0.0001
Mild Steel	0.00020
Cast Iron	0.023
Ni-Resist	0.002

B. Specimens exposed 68 days in flow box from furnace to classifiers. Average temperature 200° F.

Material	Indicated Corrosion Rate, ipy
Monel	0.0005
Inconel	0.0001
Type 302 Stainless	0.0001
Type 309 Stainless	0.0001
Type 310 Stainless	0.0001
Type 316 Stainless	0.0002
Mild Steel	0.12
Cast Iron	0.18

BROWN INCREASES WAGES

BERLIN, N. H.—A general wage increase of five cents an hour to employees of Brown Co. of Berlin and Gorham, N. H., effective October 8, was announced by L. F. Whittemore, President of the Company and Philip Smyth, President of Local No. 75, A. F. of L. representing the Union Committee.

The announcement stated that although the contract between the company and the union did not expire until June 15, 1951, the wage increase came as the result of a series of conferences looking toward improved conditions, productivity and cooperation between the management and the employees.

Ball Float Type Liquid Level Controllers

An Evaluation of their role in Industrial Processing

E. W. HORVICK[1]

Operation of high output at lowest cost, to yield maximum profit, is the ultimate aim in industrial processing. The attainment of this goal is greatly facilitated by proper regulation of process variables.

Liquid-level control in many industrial operations is mandatory for successful day-to-day operations, while maintenance of equipment at peak efficiency is often governed by the ability to hold liquid continuously at levels necessary to assure proper supply for process demands at all times.

Ball float liquid level controllers provide the least expensive and simplest method of controlling liquid level. Float-type controllers are made in two general classes: those with direct connected valves and those with pilot-operated valves.

The ball float obtains operating power from the liquid under control as it moves up and down, doing away with outside motivation. The power thus supplied may be used to operate valves, air-pilot actuators, alarm bells, signal lights, or electric switches.

Direct-connected units are applicable to services where liquid supply and withdrawal are neither extreme nor rapid. Also liquid specific gravities must be high enough to provide sufficient buoyancy to operate the valve directly. In general, direct connected liquid level controllers consist of ball float, internal float rod, necessary levers, regulating valve and various accessories like counterweights and turnbuckles to transmit float motion into valve action.

Most internal-type controllers require flange and stuffing boxes for secure installation; while for services where it is not practical to have the float in the vessel, a float cage is employed.

Float Valve Controllers

Simplest of all liquid level controllers is the float-operated lever valve *(Figure 1)*. It consists of a float, a lever with adjustable arm, and a regulating valve with necessary lever arrangement to operate the valve disc. Valve design is such that a float of small size will operate it. A double-seated disc is used to minimize the unbalancing effect from upstream line pressure. This type controller has numerous applications in power plants, general industrial fields, and water works for liquid level regulation in open tanks. It cannot be used, however, for vessels under pressure.

A typical application is illustrated in *Figure 2*, showing float valves employed to automatically regulate level in circulating boxes in a paper mill. As water from process screens passes to boxes for recirculation, float controllers prevent overflowing and, at the same time, provide proper level to assure a constant head for the recirculating pump.

On open tank or low pressure closed tank operation, a direct connected controller with stuffing box is used. The stuffing box is screwed into a flange which, in turn, is bolted to the tank. This type controller has many applications but is subject to the same limitations that guide the use of the float valve.

Internal Float Type Liquid Level Controllers

For closed tanks and pressure vessels, internal float controllers render dependable, sensitive, and smooth liq-

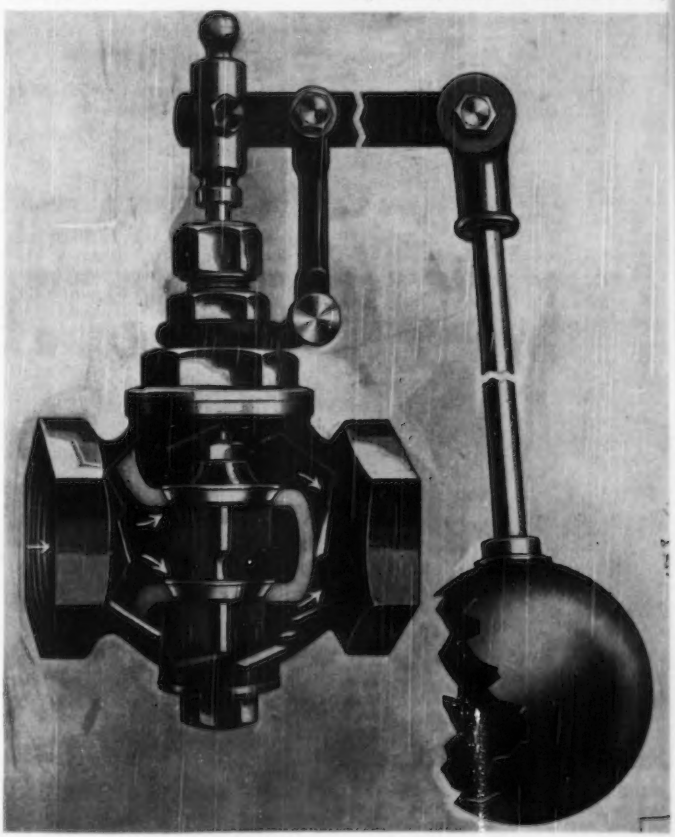


Figure 1—Globe pattern screwed-type float valve.

[1] Application Engineer, Brown Instruments Div., Minneapolis-Honeywell Regulator Co.

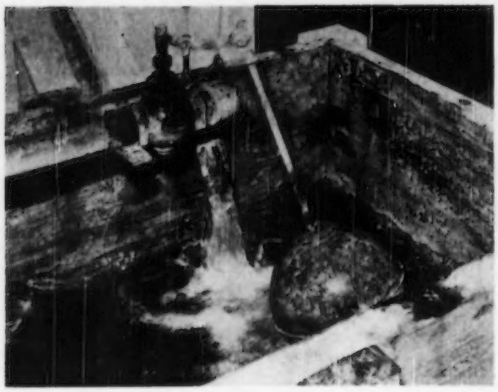


Figure 2—Float valve controlling level in recirculating box. Courtesy: W. C. Hamilton & Sons, Inc.

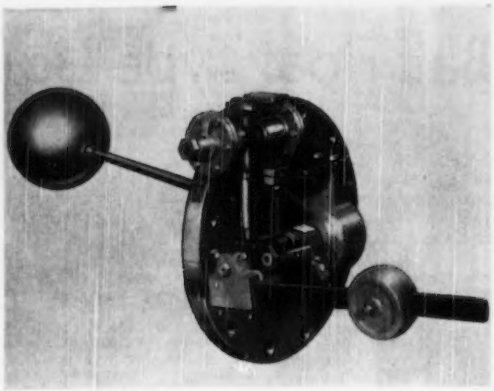


Figure 3—Honeywell flange type internal float liquid level controller.

uid level regulation. These units give excellent service when the control installation permits mounting directly to a nozzle opening, to manhole on tanks, columns, towers, or chambers. The flange is bolted directly to a nozzle which is welded to the outside of the tank, and the float rod is bent to conform to the interior shape of the tank.

These controllers comprise a float, float rod, flange, rotary shaft outboard radial and ball bearing assembly, and counterweight, in addition to a connecting rod and regulating valve. For high temperature service, the unit is equipped with radiating fins for cooling purposes. Flanges or flange bonnets can be of various constructions to suit operating requirements. An example of a specific design is the Honeywell internal liquid level controller *(Figure 3)* which is intended for use in tanks or columns where it is desired to extend the float well into the tank.

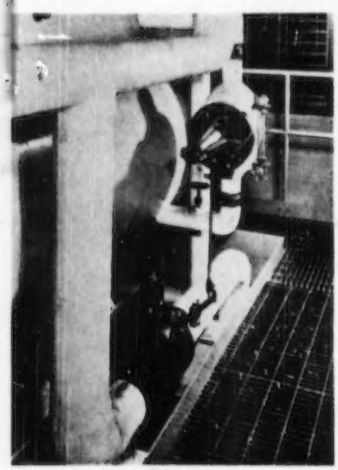


Figure 4—Honeywell float-box extension actuating rotary-shaft valve controlling deaerating feed water heater. Courtesy: J. B. Stetson Co.

These controllers are used, with variations in construction to meet performance demands, to regulate liquid level in receiving tanks, surge tanks and water towers for power plants, as well as in industrial and process equipment fields. For refinery and natural gasoline plants internal float liquid level controllers assure control of liquids in stills, absorption towers, separators, accumulators, flash chambers, coking chambers, tar draw-off drums, vacuum towers, fractionating columns, soaking drums, and stripping towers.

Internal type controllers are used on these applications because of specific process advantages. They have a wider level range than is possible in float cage controllers. Float cages are unsuitable for heavy duty refinery service in cracking zones because if coking should take place in the float cage, solidification of tarry substances would hamper its use. Also, when severe turbulence, surging, or foaming on the liquid surface takes place, internal floats are not adequate for proper level control.

Float Cage Type Liquid Level Controller

Float cages, in general, employ the same operating components as internal float level regulators, except for the use of an external cage instead of a flange or connecting bonnet. Essentially, they are self-contained liquid level controllers using equalizing connections into the liquid tank above and below the required level.

Although liquid in the cage is at the same level as in the controlled vessel, its surface is free from disturbances of operating conditions, rendering control easier. Through its movement with the liquid surface, the ball float supplies power for rotation of a stuffing-box shaft. This motion, in turn, positions a valve disc linked to a float cage lever arm.

Float cage controllers are ideally suited for liquid level control in feed water heaters, deaerators, evaporators, condensers, accumulators, hot wells, surge tanks and separators. This type controller is used to great advantage in interface liquid level regulation.

In separators when two immiscible liquids of different specific gravities are to be separated, as the heavier liquid accumulates and approaches the level at which the lighter liquid drains, the heavier liquid has to be withdrawn to prevent it from entering the lighter liquid line. This is accomplished by use of a float carefully weighed so as to balance between the two specific gravities. The ball float is then in the most advantageous location to operate a valve for withdrawal of the heavier liquid.

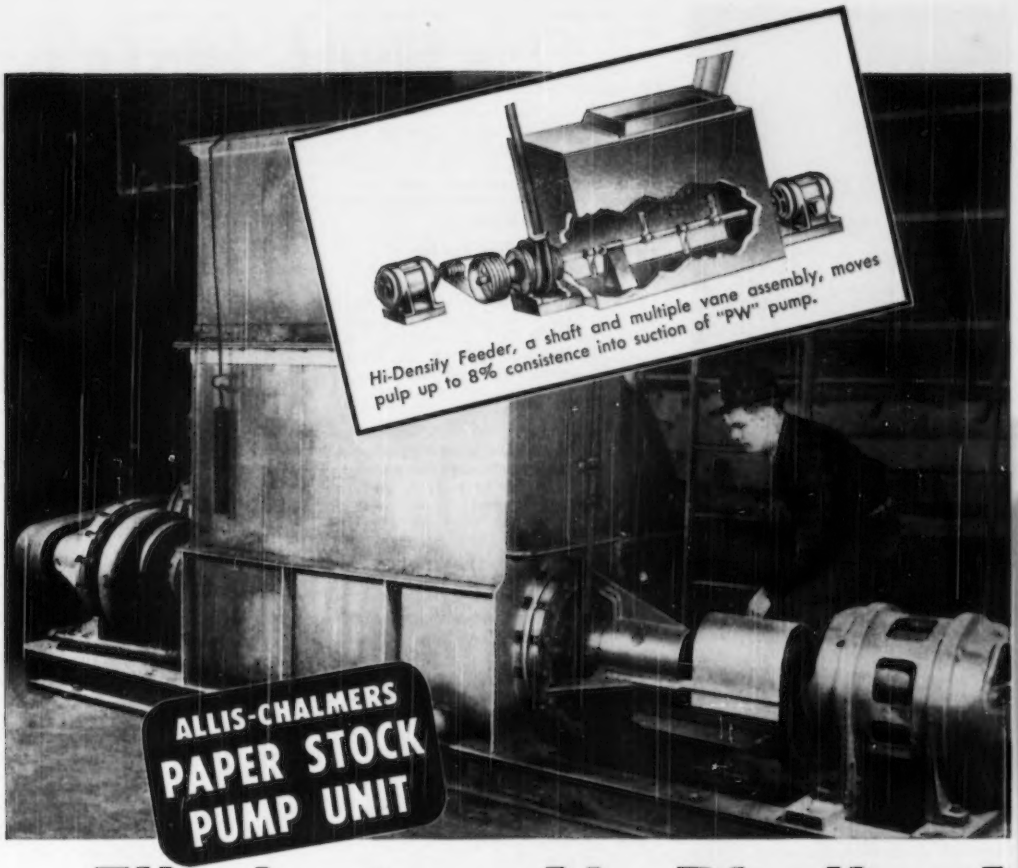
For feed water heater operation, hot deaerated water in a storage vessel affords ready supply of boiler feed for boiler. As changes in feedwater demands occur, level of the inlet deaerated water is maintained by a float-operated control valve. A typical application of this type employing a float cage liquid level controller is illustrated in *Figure 4*.

Where a direct connected system is used, consideration must be given to valve selection because of limited power available from the float. Double-seated valves designed to develop throttling action on opening and closing are especially adaptable for this service, because their inherent construction provides a pressure balance which minimizes influence of inlet or outlet pressures.

Where tight positive shut-off is required, a single-seated valve that is balanced and therefore easy to operate is frequently used. For its operation only enough power is required to actuate a small pilot valve in the center of the disc, providing a state of balance, regardless of valve opening.

Air Pilot Actuated—Remote Control

For liquid level control applications involving light specific gravity liquids, high temperatures or high pressure drops, or where more sensitive regula-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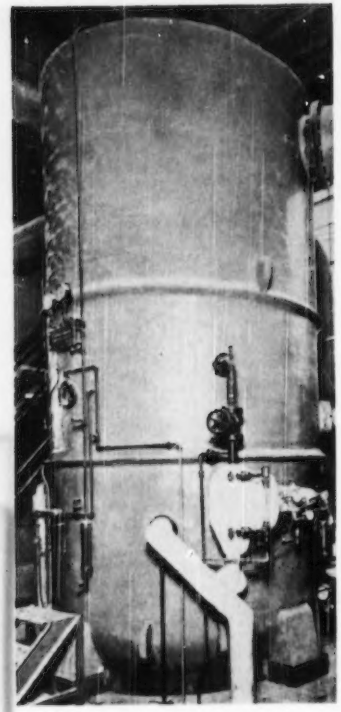


Figure 5—Honeywell float cage controller regulating liquid level of triple effect caustic soda evaporator. Courtesy: Niagara Alkali Co.

tion is required than can be provided by the direct connected unit, air pilot operated controllers are used. These controllers actuate diaphragm motor valves. Through statically balanced flexible bellows, float travel is translated into air pressure by linkage between the lever connection block and an external lever on the pilot valve.

The ball float does not position the control valve directly; its only function is to operate the pilot in an auxiliary air line. The pilot transmits throttled air pressure to the valve diaphragm, thereby regulating flow in accordance with the level of liquid being controlled.

Since the float operates only the pilot which compounds the applied force on the diaphragm, it can dependably regulate valves in sizes from ½ to 16 inches. Much more flexibility of installation is obtainable than with direct connected controllers.

An installation of a float-cage-type air-pilot-operated liquid level controller, with butterfly valve to control liquid level in a triple effect evaporator used for processing caustic soda, is shown in *Figure 5*. This type controller is highly suitable for this specialized service because level control is necessary for the success of the operation. According to the manufacturer, the essential reason for holding substantially constant levels in the three effects is to insure the maintenance of constant concentrations during operation, thereby giving consistently stable evaporator operation and ease of control.

Reliable automatic level controls are essential in the operation of a continuous evaporator, and when properly coordinated with pressure and temperature regulation, render the operation practically automatic.

Importance of Stuffing Box for Smooth Operation

In all direct-connected internal and float cage type as well as pilot operated liquid level controllers, the stuffing box is an all important factor. It must meet all operating conditions under which the controller will be used. It must have such design features that stem friction is reduced to a minimum.

Since changes in measured liquid are relayed by the float through the stuffing box, any friction detracts from power transmitted to properly position the valve. Any friction requires a proportionate increase in level change to supply power for valve operation, resulting in undue cycling of the control action.

Design of the stuffing box should also be such that repacking on the job can be done without special tools. Stuffing boxes must provide absolute positive sealing of pressures to maximum pressure ratings of controllers on which they are installed.

IMPORT COMMITTEE REPORTS

Recent Customs statistics indicate a material volume of Scandinavian white coated paperboards being imported at various ports. Such shipments running into large tonnage have been reported at such ports as Baltimore and New Orleans.

Imports of 141,350 pounds of printing paper, valued at $8,654 received in January from Switzerland have been reclassified as dutiable paper though originally reported as standard newsprint, duty free.

Ten cases involving the dutiable value of aluminum coated paper have been decided in favor of the importer on the ground that there was a controlled market in Germany at the time of shipment, and that therefore the higher prices charged German purchasers for some consumption can not be applied by United States Customs officials. Some of these cases date back over fifteen years.

The following new cases before the United States Customs Court originated at New York except as otherwise stated: Printing paper from Switzerland, claimed to be duty free as standard newsprint held for duty because of excess ash content and thickness; Two shipments at Seattle claimed to be duty free as standard newsprint were classified for duty because of excessive ash content; Newsprint imported at Norfolk claimed to be duty free as standard newsprint, classified for duty because of excessive ash; Two shipments of toilet rolls at Seattle, classified for duty as manufacturers of paper, claimed to be dutiable at the lower rate for paper cut into shapes; Nineteen shipments of paper napkins, classified for duty as manufactures of paper, claimed to be dutiable at lower rate for paper cut into shapes; Fourteen shipments of French drawing paper claimed to be dutiable at the lower rate for handmade paper, and four shipments of Finnish sulphite wrapping paper held by Customs officials to have been undervalued.

IRISH IMPORTS

DUBLIN, Ireland — In August, 1950, the Republic of Ireland imported paper and cardboard, etc., to a total value of £300,914, as against £257,780 in August, 1949. This makes a total import value of £3,009,139 for the first eight months of 1950, as against £2,130,614 in the corresponding period of 1949.

Of the August, 1959, imports, papermaking materials amounted to 390 tons, valued at £17,849, against 808 tons, valued at £22,881 in August, 1949.

Coated printing paper valued at £12,269 was imported in August, 1950, and at £41,626 in August, 1949.

Newsprint imports fell from 20,623 cwt. in August, 1949, to 10,599 cwt. in August, 1950, the respective values being £44,127 and £23,787.

Other uncoated printing paper imported in August, 1950, was valued at £4,602, compared with £15,057 in August, 1949.

Other import values included in the *Trade Statistics* issued by the Central Statistics office in Dublin, are:

Article	August, 1950	August, 1949
Writing paper in large sheets	£4,461	£4,406
Tissue paper	£1,640	£2,242
Packing and wrapping paper	£4,649	£3,046
Oiled, waxed and other waterproof paper	£13,733	£3,436
Printed wall and ceiling paper	£2,054	£1,981
Empty containers and parts (of cardboard, etc.)	£32,419	£15,918
Strawboard, not worked or corrugated	£8,847	£10,068
Other cardboard, etc., in the piece	£80,286	£45,054

Re-exports of paper and coardboard, etc., in August, 1950 were valued at £2,628, as against £46 in August, 1949.

CANADA TO GET BRITISH ORDER

OTTAWA — According to James S. Duncan, of Toronto, chairman of the Dollar-Sterling Trade Board, Great Britain will order shortly approximately $25 million worth of products from Canada, with these orders including newsprint and pulpwood. He has just returned from abroad after talks with Prime Minister Attlee of Britain and Harold Wilson, president of the British Board of Trade.

Patent Abstracts

● ***In addition to abstracts on the technology of pulp, paper and related industries, miscellaneous abstracts which may provide useful information are included.***

United States

U.S. 2,524,783 — Method of Imparting Durable Mildew Resistance to Fibrous Cellulose Materials. Florence M. Ford and William P. Hall, Wilmington, Del., assignors to Joseph Bancroft & Sons Co., Wilmington, Del. Filed April 2, 1948 — Issued October 10, 1950.

The process of imparting mildew resistance to fibrous cellulose material which consists in impregnating the material with an aqueous solution of phosphoric acid and urea, the amount of solids applied to the material being equal to that applied by a single application of solution with 100% solution pick-up in the weight of the material in the dry state when the solution contains from 0.2% to 4.5% acid by weight of the solution with the urea present in the ratio of from 1 mol to 4 mols to 1 mol of acid, drying the material, baking the dried material at temperatures of from 400° F. to 300° F. for from 2 to 30 minutes, and washing and drying the material, the pH of the solution being such that the pH of the cured fabric before washing is from 2 pH to 7 pH as determined by indicattor solutions, and the temperature and time selected being such as to introduce into the complex a ratio of acid to pyranose units of 1 to 20 to 1 to 600 in the washed dried material.

U.S. 2,524,792 — Process for Solubilizing Allyl Starch. Robert M. Hamilton, Clinton, Iowa, and Elias Yanovsky, Philadelphia, Pa., assignors to United States of America as represented by the Secretary of Agriculture. Filed July 11, 1947 — Issued October 10, 1950.

A process of preparing organic solvent soluble allyl starch comprising; allylating starch by heating starch with allyl chloride in the presence of aqueous alkali metal hydroxide, an organic solvent, and a minor amount of alkali metal iodide; acidifying the reaction mixture in the pH range 2 to 3, and heating the acidified reaction mixture in the range 70° to 110° C.

U.S. 2,524,812 — Plasticized Ethyl Cellulose. Earle L. Kropscott and Paul H. Lipke, Jr., Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich. Filed June 4, 1947 — Issued October 10, 1950.

A composition of matter for making fountain pen barrels, consisting essentially of from 92 to 98 parts by weight of ethyl cellulose having an ethoxyl content of from 45 to 46 per cent and a viscosity content of from 60 to 100 centipoises, and from 2 to 8 parts by weight of tri-tertiary-octyl diphenyloxide boiling at 250° to 270° C. at 3 Millmeters of mercury, absolute pressure.

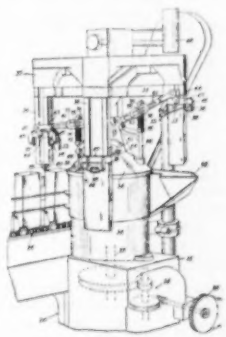
U.S. 2,524,816 — Method of Improving Kaolin and Products Thereof. Sanford C. Lyons, Bennington, Vt., assignor to Bird Machine Co., Walpole, Mass. Filed February 21, 1946 — Issued October 10, 1950.

A material suitable for use in paper coating and other purposes having enhanced whiteness and low viscosity in aqueous suspension, consisting of a clay containing particles of all sizes from about 10 microns to .25 micron inclusive and being substantially free from particles larger than 10 microns and smaller than .25 micron equivalent spherical diameter.

U.S. 2,524,846—Bag-Filling or Packing Machine. John E. Socke, Pelham Manor, N.Y., and Lloyd Henry Weber, Maplewood, N.J., assignors to American Can Company, New York, N.Y. Filed June 30, 1948 — Issued October 10, 1950.

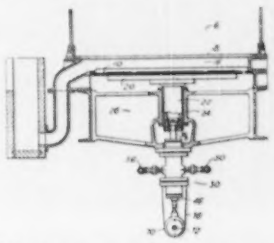
In a packing machine for loading bags or other containers with unit layers of arranged articles, the combination of a bag support for holding a bag in an open position, a loading device having a plurality of vacuum cups movable into a bag on said bag support gor gripping and depositing unit layers of atricles into the bag individually and successively and in parallel zones until the bag is filled, vacuum and venting valve means controlling the vacuumizing of said vacuum cups, air actuated cylinder means connecting with said loading device for actuating said device, air valve means connecting with said cylinder means for controlling the actuation of said cylinder means, and control switches arranged in successive zones for governing the operation of said air valve means, said switches successively stopping said loading device at successive zones within said bag thereby providing successive layers of articles to properly locate the articles in a compact mass within the bag, said control switches also governing the operation of said vacuum and venting valve means for releasing the articles from said cups at the proper zone.

U.S. 2,524,908 — Apparatus for Filling Bags. Carl H. Hartman, New Rochelle, and Esli A. Marsh and Neil E. Dorrington, Oswego, N.Y., assignors to St. Regis Paper Company, New York, N.Y. Filed March 1, 1946 — Issued October 10, 1950.



In a bag filling machine, the combination comprising a generally upright filler tube, means mounting the same for rotation about an exterior upright axis and successively past a filling position and a position above a bag-conveying means, means on said filler tube for engaging the mouth portion of bag thereon to be filled and for drawing said bag substantially throughout its length up around the lower portions of the tube to shape the bag sides prior to filling and for then lowering the bag into proximity with and above the conveying means after filling, and means to effect release of said engaging means subsequent to its downward movement.

U.S. 2,524,964—Hydraulic Apparatus for Pulsating the Diaphragms of Pulp Mill Screens. Frank Dustan, Fitchburg, Mass., assignor to National Lead Company, New York, N.Y. Filed July 11, 1945 — Issued October 10, 1950.



Hydraulic pulsating apparatus for pulsating the diaphragms of flat paper mill and pulp mill screens comprising a power cylinder, a power piston reciprocable within the cylinder, a piston rod connected to the diaphragm, a piston valve within the power piston, the piston valve having lands and passages cooperating with the power piston to form a four-way control valve for causing the power piston substantially to reproduce the movement of the piston valve, means for supplying hydraulic fluid under pressure to the control valve, a rotating drive shaft, an eccentric on the drive shaft having relatively adjustable parts to provide adjustment of eccentric stroke, and connections between the eccentric and the piston valve for positively reciprocating the piston valve in accordance with the stroke of the eccentric.

U.S. 2,525,049 — Cellulose Titanate Film Production. Frank Kerr Signaigo, Kenmore, N.Y., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed August 22, 1946 — Issued October 10, 1950.

A process for producing a transparent cellulose titanate film comprising soaking a regenerated cellulosic film in a titanating aqueous solution of titanyl sulfate sufficient in amount to combine with the cellulose from 1-30% by weight, calculated at TiO_2 of titanium, and then washing the treated product with a dilute alkaline solution.

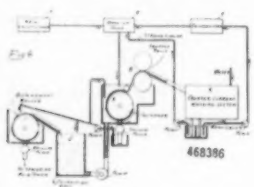
U.S. 2,525,125 — Cell Type Carton. Charles H. Goodyear, Stockton, Calif., assignor to Fibreboard Products Inc., San Francisco, Calif. Filed March 12, 1948 — Issued October 10, 1950.

A lidless, tray and cell type carton comprising a bottom, spaced side walls and spaced end walls both vertical with respect to said bottom, the end walls of the carton and a portion of each side wall adjacent each of said end walls being of greater height than intermediate portions of said side walls, the top edges of such higher end portions of the carton lying in substantially the same horizontal plane and the top edges of said intermediate portions of said side walls also lying in substantially the same horizontal plane below said first mentioned horizontal plane, a filler panel connected to and extending between said top edges of the intermediate portions of said side walls, the length of said filler panel being less than the length of said carton and each end of said filler panel being spaced from the adjacent vertical end wall of the carton whereby an uncovered cell is provided in each of said higher end portions of the carton between each end of the filler panel and the adjacent end wall of the carton, one side edge of said filler panel being integral with and hingedly connected to one of

the carton side walls and said filler panel having an integral flap hingedly connected thereto along the opposite side edge thereof, said flap having a tongue adapted to be inserted in a slit formed in the side wall of said carton opposite to that to which said filler panel is hingedly connected, crease lines formed in said filler panel adjacent its ends and in spaced relationship between said filler panel ends, all of said filler panel crease lines being parallel and extending transversely of said filler panel, and a cut between each pair of adjacent crease lines of said filler panel forming a pair of cell forming partition members between each pair of said adjacent crease lines.

Canadian

Can. *468,386 — Pulp Purification.* Louis S. Keyser and Robert E. Brown, Shelton, Washington, U.S.A., assignors to Rayonier Incorporated, Shelton, Washington, U.S.A. Filed May 14, 1947—Issued September 26, 1950.



The improvement in the production of highly purified cellulose from wood pulp which comprises passing an alkali extraction liquor which had been used and reused many times in the cold extraction of impurities from the pulp through a body of fresh pulp containing water to displace practically all the water in the fresh pulp and absorb substantially all of the alkali from the reused liquor, said extraction liquor varying from 1.1 to 1.5 equivalents, and discharging from the system the liquor from which the alkali was absorbed.

The improvement in the production of highly purified cellulose from wood pulp which comprises passing an alkali extraction liquor which had been used and reused many times in the cold extraction of impurities from the pulp through a body of fresh pulp containing water on a displacement washer, the amount of extraction liquor being at least 1.1 equivalents and sufficient with respect to the fresh pulp and water therein as to displace practically all the water from the fresh pulp, recover most of the alkali from the liquor and remove some soluble organic material from the fresh pulp, and discharging from the system the liquor from which the alkali was absorbed.

Can. *468,471 — Electrical Dust-Precipitating Units.* Verner Dahlman, Louisville, Kentucky, U.S.A., assignor to American Air Filter Company, Inc., Louisville, Kentucky, U.S.A.

An electrical dust-precipitating unit comprising, a housing having a precipitator chamber open at opposite ends to accommodate a gas flow longitudinally therethrough, at least two separable and electrically opposite unitary assemblies of spaced-parallel plate electrodes operatively positioned stationarily within the chamber to extend transversely across the gas flow path with their plates extending longitudinally along the gas flow path in operative interleaving relationship so that successive plates of one assembly extend into successive spaces between plates of the electrically opposite assembly and co-operate therewith to form a series of longitudinal gas flow passages, and mounting means for centering and supporting each assembly, and for removably holding at least one assembly, in its operative position, said means including means for electrically insulating one assembly from the other, the housing and both assemblies being so constructed and arranged that said removably mounted assembly as a unit may bodily be manually inserted into and removed from its operative position within the housing by moving it longitudinally through an open end of the housing.

Can. *468,487 — Steam and Water Separators with Steam Recirculation.* Arthur Landsverk and Erich Henkel, Calumet City, Illinois, U.S.A., assignors, by mesne assignments, to Combustion Engineering-Superheater, Inc., Wilmington, Delaware, U.S.A. Filed March 23, 1948 — Issued October 3, 1950.

In a fluid separator having a conduit through which a mixture of two fluids flows, a pair of baffle plates mounted in said conduit in angularly intersecting planes both displaced from its transverse cross-sectional plane, a collector nozzle in the said conduit on the downstream side of said baffle plates spaced from the inner wall of said conduit so as to form an annular discharge orifice and means forming a water collecting chamber into which said orifice opens; a duct connecting said chamber with an area in the steam conduit where a lower pressure exists than that prevailing in said chamber so as to induce a flow of fluid through said chamber; a pipe for draining liquid from said chamber; and means associated with said pipe forming a liquid seal to prevent escape of gaseous fluid through said pipe.

Can. *468,488 — Steam Generators.* Basil Woynar, Chicago, Illinois, U.S.A., assignor, by mesne assignments, to Combustion Engineering-Superheater, Inc., Wilmington, Delaware, U.S.A. Filed May 6, 1948—Issued October 3, 1950.

In a steam generator, an upright casing, a tubullar water supply header bent into a loop to extend along all the marginal edges of said casing at its upper end, a collecting header mounted within said loop, tubular steam generating elements connected at opposite ends to said headers and depending therefrom with the major portions of their lengths disposed in contacting relation in a row substantially beneath said collecting header to form a wall dividing the interior of said casing into a furnace combustion chamber and an adjacent gas passage, said tubes being arranged at their lower ends to permit gas flow from said furnace chamber into said gas passage, and other steam generating tubes connected at their ends to said headers and depending therefrom into said gas passage.

Can. *468,511 — Bituminous Emulsions.* Evart E. Mayfield, Wilmington, Delaware, U.S.A., assignor to Hercules Powder Company, Wilmington, Delaware, U.S.A. Filed March 11, 1942—Issued October 3, 1950.

An emulsifying agent for bituminous emulsions comprising a mixture of alkali metal saponified B wood rosin oil and another alkali metal soap emulsifying agent, said saponified B wood rosin oil being present in an amount of at least 0.5% by weight of the bitumen in said emulsion.

An aqueous asphalt emulsion comprising asphalt as the dispersed phase, water as the continuous phase, and an emulsifying agent comprising a mixture of the diamin hydroxide saponification products of B wood rosin oil and B wood rosin said saponified rosin oil being present in an amount at least 0.5% by weight of the asphalt in said emulsion.

Can. *468,512 — Paper Products and Preparation Thereof.* Gerald Inman Keim, Lincoln University, Pennsylvania, U.S.A., assignor to Hercules Powder Company, Wilmington, Delaware, U.S.A. Filed March 18, 1949—Issued October 3, 1950.

In a process for the preparation of a high-strength fibrous cellulosic web, the step comprising treating the cellulosic fibres with a modified ureaformaldehyde resin whose composition corresponds to monomers in the proportions of between about 0.83 and about 1.1 molecular parts of urea and between about 0.015 and about 0.15 molecular part of triethylenetetramine and about 2 molecular parts of formaldehyde.

In a process for the preparation of a high-strength paper, the step which comprises adding to a cellulosic fibre stock a low-viscosity aqueous syrup of a modified urea-formaldehyde resin whose composition corresponds to monomers in the proportions of between about 0.83 and about 1.1 molecular parts of urea and between about 0.015 and about 0.15 molecular part of triethylenetetramine and about 2 molecular parts of formaldehyde.

Can. 468,643 — Cigarette Paper and Processes. Milton O. Schur and Robert M. Levy, Pisgah Forest, North Carolina, U.S.A., assignors to Ecusta Paper Corporation, Pisgah Forest, North Carolina, U.S.A. Filed June 24, 1947 — Issued October 10, 1950.

A process of improving the ashing properties of cigarette paper, which process comprises the incorporation in the cigarette paper of a phosphorous compound, in amount of approximately 0.1 per cent to 0.6 per cent on an active (PO_4) basis as defined herein, which compound forms a phosphoric acid, in the cigarette paper, at the temperature of burning of the cigarette, and produces a paper ash that adheres to the tobacco ash, is characteristically free of black curling particles, and blends in fine flake formation with the tobacco ash.

A process as claimed in claim 1 and in which the compound is present in the finished paper in the amount of 0.2 per cent to 0.4 per cent expressed as active (PO_4) based on the dry weight of the paper.

A process as claimed in claim 1 in which the phosphorous compound is a phosphite compound which will liberate phosphorous acid at the temperature of the burning of the cigarette.

A cigarette paper containing approximately 0.1 per cent to 0.6 per cent of a phosphorous compound, calculated on an active (PO_4) basis as defined herein, which compound decomposes during burning of the cigarette with the formation, in place, of a phosphoric acid.

Can. 468,720—Production of Fibrous Pigments. William L. Craig, Westport, Connecticut, U.S.A., assignor to R. T. Vanderbilt Company, Inc., New York, New York, U.S.A. Filed August 23, 1948 — Issued October 10, 1950.

The method of producing highly pigmented fibrous pigments which comprises adding dry cellulosic pulp fibres to a dilute calcum chloride solution to form a pulp of the fibres in such solution, the amount of calcium chloride in such solution being at least about twice the weight of the fibres (dry basis), subjecting the resulting pulp to prolonged mechanical treatment to effect swelling and hydrating and gelatinizing of the fibres, and subsequently adding a soluble salt which will react with the calcium chloride to form a precipitated calcium compound pigment, whereby a fibrous pigment product is produced containing finely divided pigment precipitated within and also on and around the modified fibres in amount in excess of the weight of the fibres.

SUPPLIERS

AMERICAN CYANAMID CO. reports the recent retirement of Arthur H. Sampson, New England manager, Dyestuff Department, Calco Chemical Division, David T. Cornfoot, has been named assistant to the manager for the Boston Office, and of W. E. Small as assistant to the manager for the Providence Office of the Calco Chemical Division.

Announcement was also made of the appointment of Mr. Cameron Mackenzie to a new post with the responsibility for coordinating certain activities between the Calco plant at Bound Brook, N. J., and the Boston and Providence Sales Offices.

GRAPHIC ARTS INTERNATIONAL CORP. of Englewood, N. J., announces the appointment of the firm of William J. Dorsey as exclusive Northeastern Sales Representatives for the complete line of machines for paper mills and paper converters including slitters, rewinders, sheeters etc. manufactured by the Jagenberg-Werke of Dusseldorf, Germany. Graphic Arts International Corp. are the general agents and factory representatives of the Jagenberg Co. and for the time being are handling inquiries from other sections of the country through their Englewood office.

BAILEY METER CO.'S new ideas and developments to simplify and improve steam plant operation will be featured in their booth at the 1950 New York Power Show.

STAUFFER CHEMICAL CO. has reported that the expansion program underway for over a year at its Niagara Falls plant is progressing on or ahead of schedule. When completed early next year, production of chlorine and caustic soda will be nearly doubled.

J. S. COEY

John S. Coey has been appointed Eastern sales manager of the Hooker Electrochemical Co., Niagara Falls, New York. At the same time, Thomas H. Trimble, formerly Eastern sales supervisor has been made assistant manager, Niagara Sales Office.

Charles W. Harrold (left) Harris-Seybold's vice-president in charge of engineering, has been elected to the firm's board of directors, and W. R. Spiller (right) assistant vice-president, has been appointed chief engineer.

THE RICHARDSON SCALE CO., Clifton, N. J., will display its new "K-39" automatic coal scale for the first time at the National Power Show, November 27 to December 2.

A. P. WILSON

TRUNDLE ENGINEERING CO. have added Arthur P. Wilson, formerly vice-president of Frank C. Brown & Co., New York management counselors, to their staff.

WARREN STEAM PUMP CO., INC., purchased the Quimby Pump Div. of H. K. Porter Co., Inc., Pittsburgh, Pa., in August of this year and all manufacturing has been removed to the Warren, Mass., plant.

Edward F. Doty, well known designer of screw and rotary pumps, recently became associated with the company.

GETS MANUFACTURING RIGHTS

Collaboration of W. R. Grace and Co., and The Sandy Hill Iron and Brass Works of Hudson Falls, N. Y., in offering to the trade the exclusive W. R. Grace and Co. formula for the production of paper from sugar cane bagasse has been announced. Sandy Hill is to make the machinery for those using the process.

R. H. DeMOTT

SKF INDUSTRIES, INC., Philadelphia, Pa., has announced that Richard H. DeMott, who started as a salesman with SKF Industries, Inc., 35 years ago, is the new president of the ball and roller bearing company. He succeeds William L. Batt, wartime production expert, who formally resigned to re-enter government service as chief of the Economic Cooperation Administration mission to the United Kingdom. Both assumed their new duties November 1.

Mr. DeMott, who has been vice-president in charge of sales since 1943, played an important part in pioneering the use of anti-friction bearings in the papermaking, textile, railroad, electric motor and other industries.

THEW SHOVEL CO., Lorain, Ohio, announced that effective October 20, M. B. Garber assumed the position of director of sales for the company. Mr. Garber announced the appointment of J. T. Cushing as sales manager, in complete charge of all domestic sales except those to the Federal Government. Robert Maynard remains in his present position as Export Manager. Q. J. Winsor relinquishes his present duties as assistant general manager and assumes a new position under the general manager with the title of manager of development sales.

Financial News

British Columbia Forest Products, Ltd., has declared a quarterly dividend of 10 cents per share on the common stock. This establishes an annual basis of 40 cents, an increase from the 30 cents yearly rate in force since the initial semi-annual payment in February 1948. Shareholders are informed that the increase in the dividend rate reflects the recent improvement in the market for B. C. products.

Consolidated net profit in the first seven months of the current fiscal year was $1,023,166 or 51 cents share common, well above the level of preceding full 12 months of $1,208,880 or 60 cents per share.

Fraser Companies Ltd., of Newcastle, N. B., and Edmundston, N. B., reports it will redeem, by lot, 10,000 of its outstanding preferred shares on November 15, 1950. Redemption price will be $102 per share plus 60 cents a share accrued dividends. This represents a fifth of its authorized and outstanding 50,000 3¾ percent cumulative redeemable sinking fund preferred shares. They are redeemable at the company's option, at any time, on 30 days' notice, at $102 per share, or at $100 per share for sinking fund purposes, in each case plus accrued dividends.

Transfer registers were closed October 10-14 for drawing from the 50,000 outstanding, 10,000 for redemption.

Robert Gair Co., Inc., has announced that for the quarter ended September 30, 1950, the consolidated net income of the company and its domestic subsidiaries, including its 60 percent equity in the consolidated net income of Southern Paperboard Corp. and its subsidiary, combined with the consolidated net income of Gair Co. Canada Ltd. and its wholly owned subsidiaries, amounted to $1,586,394 after deducting provision of $869,000 for U. S. Federal income taxes, equal after preferred dividends to 84 cents per share on 1,779,888 shares of common stock.

Marathon Corp. declared a regular quarterly dividend of $1.25 a share on the company's preferred stock, payable January 2, 1951, to stockholders of record at the close of business December 20, 1950. The amount of the dividend is net after provision for Wisconsin privilege dividend tax.

Rayonier Incorporated, in its report to stockholders for the nine months ended September 30, 1950, shows sales of $47,204,912 compared with $34,892,095 for the corresponding period of 1949. Net income from operations for the first nine months of 1950 amounted to $7,518,478, or $6.62 per share of common stock, exclusive of a special credit of $1,543,317 received as a refund on Federal excess profits taxes in June of this year. In the corresponding period of the previous year net income was $4,108,819 or $3.19 per share of common stock.

In his letter to the stockholders, President Edward Bartsch states that the board of directors has approved a plan to increase the capacity of the company's mills by approximately 10 percent.

Nekoosa-Edwards Paper Co., Port Edwards, Wis., has reported earnings of $3.83 per share for the first nine months of 1950. This compares with $2 per share for the like period in 1949. Net income for three quarters of operation in 1950 was $1,327,761 on sales of $14,204,444 compared to $693,802 on $11,667,055 of sales during the first three quarters of 1949.

STOCK REPORT

	Per Share Earnings: Calendar Year 1949	Per Share Earnings: 12 Mo. to Approx. 9/30/50	Indic. Annual Divid. Rate	Nov. 6 Approx. Market Price
PREFERRED STOCKS				
Armstrong Cork Co. $3.75 Cum.	$40.95*	$48.14a	$3.75	$103⅜
Armstrong Cork Co. $4.00 Cum Conv.	40.95*	48.14a	4.00	109¾
Celotex Corp. 5% Cum.	6.80c	8.75a	1.00	16¼
Champion Paper & Fibre $4.50 Cum.	60.09f	97.79	4.50	106¾
Container Corp. of Amer. 4% Cum.	89.52	104.60a	4.00	104½
Crown Zellerbach $4.20 Cum.	54.38c	61.85a	4.20	103⅝
Dixie Cup Co. $2.50 Cum. Conv. Cl. A	10.93	13.70	2.50	53⅜
Flintkote Co. $4 Cum.	62.70	79.70	4.00	104¾
Robert Gair Co., Inc. 6% Cum.	13.79†	17.21†	1.20	17⅞
International Paper Co. $4 Cum.	224.55	264.19a	4.00	105¼
Kimberly Clark Corp. 4% Cum.	85.27	117.03i	4.50	106
MacAndrews & Forbes 6% Cum.	61.59	62.97a	6.00	142
Mead Corp. 4¼% Cum.	51.37	88.30a	4.25	92½
Mead Corp. 2% Cum. Conv. 2nd	21.35*	36.20a*	2.00	56¼
Pabco Products, Inc. 4% Cum. Conv.	56.46	124.88	4.00	99¾
Rayonier Inc. $2 Cum.	9.54	17.45	2.00	34⅜
St. Regis Paper Co. 4.40% 1st A	30.74	52.38a	4.40	94⅜
Scott Paper Co. $3.40 Cum.	51.15*	62.16*	3.40	98¼
Scott Paper Co. $4.00 Cum.	51.15*	62.16*	4.00	105¼
Sutherland Paper 4¼% Conv.	46.92	68.59	4.25	113
U. S. Gypsum Co. 7% Cum.	283.37	429.37	7.00	184½
United Wallpaper Inc. 4% Cum. Conv.	2.14	(d)15.98a	2.00	22¾
West Virginia Pulp & Paper 4½% Cum.	61.28c	61.06i	4.50	111
COMMON STOCKS				
APW Products Co.	(d)0.81	(d)0.01a	—	5⅛
American Writing Paper Corp.	.04	0.86	—	7⅞
Armstrong Cork Co.	6.57	7.84a	$3.00	47¼
Celotex Corp.	1.65c	2.20a	1.00	14⅝
Certain-Teed Prods. Corp.	2.84	3.43	1.00	13⅜
Champion Paper & Fibre	5.15f	8.93	2.45	42⅜
Congoleum Nairn Co.	3.04	2.70a	2.00	23⅝
Container Corp. of America	8.46	10.27a	4.00	56
Crown-Zellerbach	6.02c	6.84a	2.00	42⅛
Dixie Cup Co.	7.44	9.87	1.50	44⅜
Eastern Corp.	0.04	3.04	(h)	17⅛
Flintkote Co.	4.33	5.48	3.00	25¾
Robert Gair Co., Inc.	2.11†	2.69†	0.70	10⅛
Great Northern Paper Co.	4.87	3.75a	2.80	45⅜
International Paper Co.	7.12	8.14a	2.50	43⅜
Johns-Manville Corp.	4.83	6.38a	2.50	41⅞
Kimberly Clark Corp.	5.29	6.66i	1.80	40¼
MacAndrews & Forbes Co.	3.64	3.77a	3.00	40¼
Marathon Corp.	3.29c	4.13i	1.40	33¼
Mead Corp.	4.10	7.32a	2.20	28⅜
National Container Corp.	0.95	1.34a	0.75	10
Pabco Products, Inc.	0.85	1.95	0.60	15⅞
Rayonier, Inc.	4.75	9.73	2.50	40⅛
Ruberoid Co.	8.72	9.52	3.25	48¾
St. Regis Paper Co.	0.91	1.63a	0.60	9¾
Scott Paper Co.	6.07	7.12	3.60	40⅜
Sutherland Paper Co.	4.62	6.47	2.75	41¼
Union Bag & Paper Corp.	5.01	6.68	2.50	33¾
United Board & Carton	(d)1.61b	0.58j	—	11¾
U. S. Gypsum Co.	13.51	17.87	9.00	106¾
United Wallpaper	(d)0.01	(d)0.55a	—	2⅞
West Virginia Pulp & Paper	8.58c	8.36i	5.00	64½

(a) 12 months to approximately 6/30/50
(b) Year ended 11/13/49
(c) Year ended 1/31/50
(d) Deficit
(f) 9 months to 12/31/49
(g) 12 months to approximately 4/30/50
(h) Declared 25c payable Sept. 1, 1950
(i) 12 months to 7/31/50
(j) 12 months to 5/31/50
(*) Earnings per combined preferred shares
(†) Includes domestic and Canadian subsidiaries and 60% equity in Southern Paperboard Corp.

PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Most orders accepted, however, at price prevailing on date of shipment. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports

Rolls, contract, per ton $100.00/110.00
Sheets ..... 115.00/ —

F.o.b. Mills. C.l. Frt. allowed, dock, N. Y.

Kraft— pr cwt., 40# base wgt.

Standard Wrapping Rolls ..... $7.00/$7.25
No. 1 Wrapping Rolls 7.75/ 8.00
Standard Bag 6.75/ 7.00

Tissues— per ream 24x36 (480) 10 lbs. 2500 lbs or more

Wh. No. 1 Frd .....‡ $1.75 / —
Wh. No. 1 MG .....‡ 1.75 / —
Wh. No. 1½ .....‡ 1.65 / —
Wh. No. 2 .....‡ 1.55 / —
Kraft Non-Tar .....‡ 1.60 / —
White Non-Tar .....

Toilet— per case of 100 rolls—1 M sheets

Unbleached 4½x4½ ..... $5.90/ —
Unbleached 4½x5 ..... 6.05/ —
Bleached 4¼x4½ 7.10/ 8.80
Bleached 4½x5 ..... 9.10/ —

Per Case of 50 rolls—2000 sheets

Unbleached 4¼x4½ ..... $5.90/$6.25
Bleached 4¼x4½ ..... 6.95/ —

Per Case of 100 rolls—1000 sheets

Facial, 4½x5, 2 ply ..... $8.95/$9.85

Paper Towels— per case of 3750

Wh. Jr. M'tif'd 9¾x9½ $5.65
Br. Sr. M'tif'd 10x12 ..... 4.00
Br. Jr. M'tif'd 9½x9¾ 3.50
Br. Jr. Sgl. fold 10x10¾ 3.35
Blchd. 7½x11, 24/25 rolls .....‡ $6.00/7.00

Manila, per cwt.

No. 1 Jute Tag sheets* $16.55/18.55
Reg. Jute M.F. 40-lb., sheets* 15.00/17.00
Wrapping Manila 8.75/ 10.50
Printing Manila 10.50/12.00
* Less usual allowance for rolls.

WORLD WOOD PULP MARKETS

Fourth Quarter Contract Prices, Per Short Air-Dry Ton

Varying freight allowances — Atlantic Ports

	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$75.00/ —	$75.00/ 85.00	††82.50/ —		
Siderums Pulping News .	75.00/ —	75.00/ 85.00			
Soda, Bleached	130.00/ —	130.00/ —			
Sulphate, Bleached	128.00/167.50	141.00/ —	*165.00/167.50		Competitive
Sulphate, Unbl'd North'n		115.00/120.00	*135.00/165.00		
Sulphate, Unbl'd South'n	125.00/160.00				
Sulphite, Blchd. (S'ftw'd)	128.00/145.00	135.00/138.00	*160.00/ —		Competitive
Sulphite, Blchd. (H'dw'd)	145.00/ —				
Sulfite, Semi-blchd.	128.00/ —				
Sulphite, Unbleached ...		117.00/120.00	*138.00/165.00		
Sulphite, Unbl'd (Glassine)		121.00/ —	*142.00/150.00		

* On dock. † Delivered.

Gummed Tape— per bdl., 500 bdls. or more

90-lb. 375 ft. GSI .....‡ $6.90 / —
60-lb. 600 ft. GSI .....‡ 6.90 / —
35-lb. 800 ft. GSI .....‡ 7.93½/ —
35-lb. 500 ft. GSO .....‡ 5.98 / —

Boards, per ton—

Filled News ..... $97.50/ —
Plain Chip ..... 95.00/ —
Blchd. Mla. L-d. Chip 120.00/125.00
White Pat. coated .020 ..... 145.00/155.00
Kraft Liners 42 lb. 112.50/115.00
Kraft Corr. .009 ..... 117.50/126.00
Binders Boards ..... 135.00/ —

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers—
White, 20 lb.

Bonds

	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$64.55/$69.60
100% Rag	56.95/ 57.30
75% Rag	43.70/ 44.15
50% Rag	35.60/ 35.95
25% Rag	29.75/ 30.00

Ledgers

	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$65.15/$66.35
100% Rag	58.20/ 58.75
75% Rag	44.95/ 46.20
50% Rag	36.95/ 37.30
25% Rag	31.00/ 31.35

Sulphite Bonds and Ledgers
White, 20 lb.

Bonds

	4 Ctns.
	per cwt.
Watermarked	$18.15/$19.05
Plain	17.10/ 17.45

Ledgers

	4 Ctns.
	per cwt.
Watermarked	$19.50/$20.30
Plain	18.55/ 18.75

White Book

Conversion Coated	Case
	per cwt.
No. 1	$21.65/$21.75
No. 2	20.15/ 20.40
No. 3	19.65/ —
Machine Coated	
No. 1	$16.90/ 17.15
No. 2	14.90/ 15.15
Uncoated	
No. 1 Antique (Watermarked)....	$17.15/ 18.65
Offset	16.15/ 16.90
A Grade E. F.	16.15/ —
A Grade S. C.	16.65/ 16.90
B Grade E. F.	15.40/ —
B Grade S. C.	16.15/ —

‡ Indicates a price change.

WASTE PAPER MARKET

The following quotations were gathered from major dealers in each market. They are an indication of the price range in which volume tonnage was moving on the date specified. Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.) ALL PRICES NOMINAL. SPOT OFFERINGS OR SPECIAL PACKINGS NOT INCLUDED.

	New York	Philadelphia	Boston	Chicago
	Nov. 6	Nov. 2	Nov. 4	Nov. 6
No. 1 Mixed Paper	$25.00/ 28.00	$25.00/ 29.00	$22.00/ —	$27.00/ —
Boxboard Cuts	20.00/ 28.00	25.00/ —	19.00/ —	31.00/ —
Mill Wrappers	22.00/ 35.00	30.00/ —	24.00/ 29.00	29.00/ —
No. 1 News	26.00/ 31.00	27.00/ 30.00	26.00/ —	30.00/ —
Over-issue News	29.00/ 36.00	35.00/ —	25.00/ 27.00	33.00/ —
Corrugated Containers	35.00/ 38.00	36.00/ 38.00	33.00/ 35.00	38.00/ —
New Corrugated Cuts	40.00/ 45.00	40.00/ 45.00	35.00/ 40.00	48.00/ —
Double Kraft Ld. Corr. Cuts ...	80.00/ 85.00	nominal	70.00/ 80.00	100.00/ —*
100% Kraft Corr. Cuts.....	110.00/120.00	nominal	80.00/ 90.00	120.00/ —
Used Kraft Bags	60.00/ 75.00	nominal	50.00/ —	55.00/ —
No. 1 Brown Kraft Paper	70.00/ 75.00	nominal	50.00/ 60.00	55.00/ —
Super Resorted Br. Kraft	65.00/100.00	nominal	65.00/ 70.00	65.00/ —
New Br. Kraft Env. Cuts	125.00/130.00	nominal	110.00/115.00	130.00/ —
New Br. Kraft Cuts	120.00/130.00	nominal	85.00/ 90.00	120.00/ —
No. 1 Gdwd Shvs.	60.00/ 65.00	nominal	60.00/ —	35.00/ —
White Newsblanks	105.00/110.00	nominal	80.00/ —	95.00/ —
No. 1 Flyleaf Shvs.	80.00/ 85.00	nominal	65.00/ 75.00	100.00/ —
No. 1 Soft Wht. Shvs.	160.00/170.00	nominal	110.00/115.00	150.00/ —
Super Soft Wht. Shvs.	170.00/175.00	nominal	115.00/125.00	160.00/ —
Hd. Wht. Shvs.	175.00/185.00	nominal	125.00/140.00	165.00/ —
Hd. Wht. Env. Cuts	190.00/220.00	nominal	140.00/170.00	175.00/ —
New Manila Env. Cuts	120.00/125.00	nominal	90.00/100.00	100.00/ —
Col. Tab Cards	90.00/105.00	nominal	55.00/ 60.00	80.00/ —
Manila Tab Cards	135.00/150.00	nominal	100.00/110.00	150.00/ —
No. 1 Mixed Ledger	70.00/ 85.00	nominal	60.00/ —	80.00/ —
White Ledger	105.00/115.00	nominal	70.00/ 80.00	110.00/ —
No. 1 Book & Mag.†	35.00/ 40.00	nominal	30.00/ 35.00	30.00/ —
No. 1 Rep'd. Hvy. Books‡	50.00/ 55.00	nominal	40.00/ 50.00	50.00/ —

* Delivered. † Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood.

RAG MARKET

New Domestic Cotton Cuttings
(Prices to Dealers, F. o. b. Ship. Pt.)

ALL PRICES NOMINAL

No. 1 White Shirts	$17.00/$18.00
No. 1 Unblchd. Muslins	15.50/ 17.50
Blchd. Canton Flannels	15.00/ 16.00
No. 1 Lt. Silesias	10.00/ 11.00
No. 1 Lt. Prints	7.50/ 8.50
Wht. Bk. Blue Overalls (Blchable)	11.00/ 12.00
No. 1 Blue Overalls	5.00/ 5.25
Fancy Shirts	6.00/ 6.50
No. 1 Washables	5.00/ 5.50
Suntan Khaki Cuts	9.00/ —
Mixed Khaki Cuts	6.00/ 7.00
Corduroy Cuts	4.50/ 5.00
Cottonades	4.50/ 5.00
Blchd. Underwear Cuts	16.00/ 17.00
Unblchd. Underwear Cuts	15.00/ 16.00

Old Domestic Cotton Rags
(Prices to Dealers, F.o.b. Ship. Pt.)

ALL PRICES NOMINAL

	Per 100 lbs.
Mixed White	$4.50/$5.00
Cotton Pants & Overalls	3.75/ 4.25
Thirds and Blues, Repacked	3.50/ 3.75
No. 1 Roofing Rags	2.40/ 2.65
No. 2 Roofing Rags	2.00/ 2.25
No. 3 & 4 Roofing Rags	1.90/ 2.15
Roofing Bagging	1.90/ 2.15

New Foreign Cotton Cuttings
(Prices to Mills, F.o.b. Dock, N.Y.)

	Per 100 lbs.
New Dark Cuttings	$4.25/$4.75
New Mixed Cuttings	4.50/ 5.00
Light Silesias	7.50/ 8.00
Light Flannelettes	7.50/ 8.00
New White Cuttings	nominal
New Unbleached Cuttings	nominal

Fancy Shirt Cuttings	6.00/ 7.00
Light Prints	6.00/ 7.00
Bleachable Khaki, No. 1	5.50/ 6.00
Unbl. Khaki, No. 1	4.50/ 5.00

Old Foreign Rags

(Prices to Mills, F.o.b. Dock, N. Y.)

	Per 100 lbs.
No. 1 White Cottons	$6.50/$7.50
No. 2 White Cottons	5.50/ 6.00
No. 3 White Cottons	4.00/ 4.50
No. 4 White Cottons	3.50/ 3.75
Extra Light Prints	4.50/ 5.00
Old Light Prints	4.00/ 4.25
Med. Light Prints	3.50/ 3.75
Dutch Blue Cottons	3.75/ 4.00
Checks and Blue	3.00/ 3.50
Linsey Garments	2.75/ 3.00
Dark Cottons, European	2.25/ 2.50
Dark Cottons, Egyptian	2.15/ 2.30
Old Shopperies	2.10/ 2.25
New Shopperies	2.25/ 2.50

Bagging

(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$7.00/$8.00
Domestic Gunny, No. 1	7.00/ 8.00
Heavy Wool Tares	6.75/ 7.50
Foreign Manila Rope	4.25/ 4.50
Domestic Manila Rope	5.25/ 5.50
Jute Strings	6.25/ 6.50
No. 1 Sisal Strings	3.50/ 4.25
Mixed Strings	nominal
Paper Mill Tares	5.25/ 5.75
No. 1 Scrap Burlap	
Foreign	4.75/ 6.00
Domestic	5.50/ 6.50
Austr. Wool Pouches	6.75/ 7.50
New Burlap Cuttings	7.00/ 7.50

MATERIALS

Aluminum, sulfate:
coml. bags, wks. cwt. 1.65
iron free c.l. 2.75

Alcohol, ethyl:
tax free, dms. c.l. gal. .62 / .97
dnld. East Miss.

Alcohol, methyl:
Synthetic, Zone 1, dms.
c.l. fit. alld. gal. .41

Casein, acid-prec.:
dom. sh. pt. c.l. lb. .36 / .38
imp. ex dock lb. .33 / .33½

Caustic soda:
c.l. wks. solid, 76%, cwt. 3.35
flak. & grd. 100 lb. drums 3.75
liquid 50% tanks 2.55
liquid 70% tanks 2.65

China clay:
dom. air float. filler, c.l. wks.
ton 10.00
water-washed 11.00
coating 16.00 /30.00
imported, ex whse., short ton 15.20 /28.35

Chlorine:
single-unit tanks, works cwt. 2.70
multi-unit cwt. 3.20 / 4.40

Formaldehyde:
USP, inb. dms, c.l. wks. lb. .0600/ .0625
l.c.l. E. wks .0650/ .0675

Fuel oil:
Bunker C, No. 6 Cal. hvy
tanks, refinery bbl. 1.55 / 1.60
light bbl. 2.03 / 2.10

Hydrogen peroxide:
USP, 35% chys. E. of Miss.
lb. .24½/ .25½

Lime:
hydrated, bags, wks. Buffalo
ton 13.50

Rosin:
B gum, drms, c.l. Savan. cwt. 4.10
G. H. I. K cwt. 7.91
FF, wood, do cwt. 6.25

Rosin size:
70%, gum & pale grds. tank
cars, work, dk. pt. cwt. 6.70 6.90

U. S. IMPORTS
WOODPULP

Preliminary, September, 1950

Item	Country of Origin	Short Tons
Mechanical		
Unbldchd.	Canada	18,808
	Sweden	56
	Finland	1,832
		20,696
Screenings	Canada	333
Bldchd.	Canada	1,012
Chemical		
Sulfite, Unbldchd.	Canada	36,983
	Sweden	4,407
	Netherlands*	15
	Germany*	182
	Czechoslovakia	264
	Switzerland*	89
	Finland	3,057
		44,997
Screenings	Canada	530
Sulfite, Bldchd.		
Rayon & Special	Canada	24,753
Chem. Grades	Sweden*	87
	Norway*	224
		25,064
Other	Canada	23,703
	Sweden	3,284
	Norway	838
	Austria	468
	Finland	3,556
		31,849
Sulfate, Unbldchd.	Canada	21,862
	Sweden	3,622
	Norway	447
	Finland	6,626
		32,557
Sulfate, Bldchd.	Canada	24,376
	Sweden	4,916
	France*	20
		29,312
Soda, Unbldchd. & Bldchd.	Canada	2,802
Totals, September	Canada	155,162
	Sweden	16,372
	Netherlands	1,018
	Germany	182
	Czechoslovakia	264
	Switzerland	89
	Finland	15,071
	Norway	1,309
	Austria	468
	France	20
		189,152

* To be investigated by Census.

Salt cake.
dom. bulk, c.l. wks. ton 17.00
wks. frt. all. ton 20.00 /22.00

Soda ash:
light, 58%, bags, wks. 1.50
bulk cwt. 1.20

Sodium silicate 40°:
turbid, c.l. wks. cwt. 1.20
l.c.l. wks. 1.55 / 1.95

Sodium peroxide:
dms. c.l. E. of Miss. lb. .19
l.c.l. lo. lb. .19½/ .20

Soybean, protein:
chem. isol, wks. c.l. lb. .24 / —
Cinn. and Chic.

Sulfuric acid:
60° Be. chys, cl. wks. cwt. 1.75 / —
l.c.l. wks. cwt. 2.05 / 2.60

Sulfur:
crude, c.l. mines, contract, long ton 18.00 /22.00
f.o.b. vessels Gulf. 19.50 /23.50
Export, f.o.b. Gulf. 22.00 /25.00

Sulfur dioxide:
liquid, coml. cyl. wks. lb. .09
multi-unit cars lb. .0535

Starches:
pearl corn, bags, c.l. Chic. cwt. 5.47 / —
white dextrines, c.l. Chic. cwt. 6.74 / —
potato, Idaho, c.l. wks. cwt. 5.00 / —
potato, Maine, c.l. wks. cwt. 5.00 / —
tapioca, conv. dextrines cwt. 6.75 / 7.25
medium grds. Gulf and East Coast ports 5.75 / 6.25
low, Siam, on dock N. Y. 5.00 / 5.25
nominal

Talc:
domestic, 50-lb. sacks, c.l. wks. ton 25.00 /30.00

Titanium dioxide:
anastase, c.l. deld., bags lb. .19½
l.c.l. deld. lb. .20 / .20½
rutile, c.l. deld. lb. .21½
l.c.l. deld. lb. .22½

N.B.: For special market conditions, see *Trends*.

IMPORTS

IMPORTS AT NEW YORK

Week Ending Nov. 4

Newsprint

( ), Markland, Liverpool, N.S., 4290 rolls; 1927 rolls (Richmond, Va.).

Madden Reeve Angel & Co., Inc., Krageholm, Kotka, 980 rolls.

Tracing Cloth

E. Dietzgen & Co., Media, Liverpool, 7 bls. (bleached cotton).

Keuffel & Esser Co., American Traveler, Manchester, 39 cs. (bleached cotton).

Tissue Paper

G. Lappegoes, Media, Liverpool, 2 cs.

American Express Co., American Traveler, Liverpool, 1 ble.

B. F. Drakenfeld & Co., American Traveler, Liverpool, 34 cs. (gauze carbonizing).

Wallpaper

C. A. Haynes & Co., Media, Liverpool, 1178 ctns.

Taub Hummel & Schnall, Media, Liverpool, 72 cs.

Ginty Bros., (Denver), American Traveler, Liverpool, 111 ctns.

Isgo Wallpaper Corp., American Traveler, Liverpool, 605 ctns.

Lenox Wallpaper Corp., American Traveler, Liverpool, 335 ctns, 3 rolls.

C. A. Haynes & Co., American Farmer, London, 31 bls.

Elof Hansson Inc., Stockholm, Gothenburg, 448 bls., 1 pcl.

Parsons & Whittemore, Inc., Stockholm, Gothenburg, 3 pkgs.

Gottesman & Co., Inc., Stockholm, Gothenburg, 1 pcl.

S. K. Lonergren, Stockholm, Gothenburg, 175 ctns.

Filter Paper

H. Reeve Angel & Co., Inc., American Farmer, London, 20 cs.

E. H. Sargent & Co., Stockholm, Gothenburg, 7 cs.

Drawing Paper

H. Reeve Angel & Co., Inc., American Farmer, London, 1 cs.

Globe Shipping Co., Washington, Southampton, 1 cs.

Wrapping Paper

Jay Madden Corp., Krageholm, Rauma, 161 rolls.

Elof Hansson, Inc., Ablasserdyk, Rotterdam, 16 bls.

Boxboard

Jay Madden Corp., Krageholm, Rauma, 61 rolls, 17 bls. (folding).

Writing Paper

Bergdorf Goodman, Washington, Havre, 3 cs.

All Transport, Inc., Washington, Havre, 4 cs.

Higbee Co., Lista, Havre, 2 cs.

Bowl Paper

Hurley Johnson Corp., Media, Liverpool, 30 bls.

Carbon Paper

United Nations, American Traveler, Liverpool, 13 cs.

Water Color Paper

Winsor & Newton, Inc., American Farmer, London, 4 cs. (hand made).

Printing Paper

Stevens Nelson Paper Corp., American Farmer, London, 8 cs.

Baryta Coated Paper & Board

D. W. Hickey, Inc., American Farmer, London, 86 rolls.

Photo Paper

Alco Photo Supply Corp., Mauretania, Southampton, 5 cs.

Cardboards

Intra Mar Shipping Corp., American Lawyer, Rotterdam, 78 cs.

Paper Towels

H. W. Robinson & Co., Queen Elizabeth, Southampton, 2 cs.

Paper Napkins

H. W. Robinson & Co., Queen Elizabeth, Southampton, 8 cs.

Veneer Paper

Stevens Nelson Paper Corp., Talleyrand, Yokohama, 2 cs.

Gummed Paper

B. F. Drakenfeld & Co., American Traveler, Liverpool, 74 cs.

Heisel Bruckman & Lorlacher, American Producer, Hamburg, 1 cs. (tape).

Sulphite Paper

B. M. Heede, Osbjford, Oslo, 37 bls.

Miscellaneous Paper

Stevens Nelson Paper Corp., Talleyrand, Yokohama, 4 cs.

Rags, Baggings, etc.

(——), Marseilles, Marseilles, 135 bls. rags.

Webbing Strap Co., Marseilles, Marseilles, 51 bls. rags.

Robbins Forwarding Co., American Farmer, London, 93 bls. cotton rags.

E. J. Keller Co., Inc., American Farmer, London, 23 bls. paperstock.

Webbing Strap Co., American Traveler, Manchester, 21 bls. cotton rags.

(——), American Traveler, Manchester, 54 bls. old bagging.

Darmstadt Scott & Courtney, American Traveler, Manchester, 184 bls. bagging.

E. J. Keller Co., Inc., American Traveler, Manchester, 49 bls. rags.

Binzyl & Biak, Exanthia, Venice, 95 bls. bagging, 94 bls. burlaps.

1st National Bank of Boston, Exanthia, Venice, 5 bls. bagging.

(——), Exanthia, Venice, 57 bls. rags.

A. de Vries Trading Corp., Gudrun Maersk, Rouen, 42 bls. rags.

E. J. Lang, Gudrun Maersk, Rouen, 158 bls. rags.

Midwest Waste Materials Co., Gudrun Maersk, Antwerp, 362 bls. bagging, 197 bls. rags.

E. J. Keller Co., Inc., Exchester, Istanbul, 491 b's. cotton rags.

Merchants National Bank, Mobile, Exchester, Leghorn, 64 b's. jute rags.

Bankers Trust Co., Exchester, Leghorn, 180 bls. old rags.

Star Woolen Co., Orizaba, Tampico, 7 bls. rags.

Chase National Bank, Exbrook, Messina, 152 bls. rags.

Chase National Bank, Exbrook, Palermo, 332 bls. rags.

Three direct-connected Vacuum Pumps operating in West Virginia paper mill since 1932.

SEARCHING FOR THE RIGHT VACUUM PUMP?

Then check ROOTS-CONNERSVILLE'S wide line of standard sizes, built to meet paper mill needs.

Providing the right cycloidal vacuum pump for use on suction rolls, flat boxes and felt conditioners has been a specialty with Roots-Connersville for many years. Users profit from these outstanding advantages:

High volumetric efficiencies—accurately maintained clearances, effectively sealed by water, insure high efficiencies; air being handled can be dry, or contain vapors or liquids.

Low friction losses—due to no contact between impellers or impellers and casings.

Higher speeds—permitting direct connection to standard motors, saving first cost, space, and weight.

Flexibility—to meet varying vacuum requirements; suction automatically created to overcome resistance in system.

Durability and dependability—simplified design and construction for long-time, attention-free operation.

Send us your requirements and we will recommend, without obligation, the proper vacuum pump equipment to handle the job efficiently and economically.

ROOTS-CONNERSVILLE BLOWER CORPORATION
511 River Avenue, Connersville, Indiana

ROOTS-CONNERSVILLE

BLOWER BUILDERS SINCE 1854

ONE OF THE DRESSER INDUSTRIES

National Bank of Detroit, Helen Stevenson, Lisbon, 124 bls. old bagging.

Bankers Trust Co., Stockholm, Gothenburg, 105 bls. new cotton cuttings.

Irving Trust Co., Executor, Casablanca, 193 bls. paperstock.

D. Benedetto, Tramar, Antwerp, 54 bls. rags.

E. J. Keller Co., Inc., Tramar, Antwerp, 57 bls. old bagging.

Harris Goldman Co., Tramar, Rotterdam, 76 bls. old bagging, 2 bls. wipers.

Midwest Waste Materials Co., Tramar, Bremen, 82 bls. light cotton cuttings.

(———), Lista, Havre, 200 bls. canvas cuttings.

Robbins Forwarding Co., Lista, Havre, 141 bls. canvas cuttings.

A. de Vries Trading Corp., Lista, Havre, 104 bls. rags.

Darmstadt Scott & Courtney, Mohamed Ali El Kebir, Marseilles, 67 bls. rags.

Robbins Forwarding Co., Mohamed Ali El Kebir, Marseilles, 62 bls. rags.

National City Bank, Mohamed Ali El Kebir, Alexandria, 104 bls. old colored cotton rags, 13 bls. old rags, 50 bls. old bagging.

E. J. Keller Co., Inc., Mohamed Ali El Kebir, Alexandria, 136 bls. old rags, 85 bls. linsey rags.

(———), Mohamed Ali El Kebir, Alexandria, 65 bls. hessian tares.

Old Rope

C. Smiles, American Traveler, Manchester, 652 bls. waste hemp cordage.

Woodpulp

Price & Pierce, Ltd., Markland, Liverpool, N.S., 917 bls. unbleached sulphite pulp.

Woodpulp Boards

Jay Madden Corp., Krageholm, Kotka, 63 bls., 201 rolls (solid white).

Parsons & Whittemore, Inc., Stockholm, Gothenburg, 318 rolls, 117 bls.

IMPORTS AT BOSTON

Week Ending Nov. 4

E. Butterworth & Co., Inc., American Traveler, Manchester, 84 bls. old bagging, 42 bls. new cuttings.

Ayres W. C. Jones, American Traveler, Manchester, 57 bls. bagging.

Train Smith Co., American Traveler, Liverpool, 126 bags hide cuttings.

J. A. Conley, American Traveler, Liverpool, 18 cs. gauze carbonizing tissue paper.

Irving Trust Co., American Producer, Rouen, 126 bls. bagging.

E. J. Keller Co., Inc., American Leader, Havre, 44 bls. rags.

S. Shapiro, American Farmer, London, 64 bls. rags.

(———), Exanthia, Venice, 118 bls. linsey garments.

IMPORTS AT PHILADELPHIA

Week Ending Nov. 4

(———), Marseilles, Marseilles, 294 bls. rags.

THE H. K. FERGUSON COMPANY

PAPER MILL ENGINEERS & BUILDERS

Complete Service for Design, Construction, Equipment Installation, Engineering Reports and Surveys

Executive Offices
Ferguson Building, Cleveland

District Offices
10 Rector St., New York; M & M Bldg., Houston; 120 S. La Salle St., Chicago; 2975 San Fernando Road, Los Angeles; 21 E. 12th St., Cincinnati

(———), Emma Bakke, Alexandria, 142 bls. rags.

Jay Madden Corp., Krageholm, Helsinki, 429 rolls wrapping paper.

Madden Reeve Angel & Co., Inc., Krageholm, Kotka, 143 rolls newsprint.

Jay Madden Corp., Krageholm, Rauma, 242 rolls wrapping paper.

Pulp Sales Corp., Krageholm, Rauma, 2240 bls. mechanically ground woodpulp, 2680 bls. sulphite pulp.

Pagel Horton & Co., Inc., Krageholm, Gefle, 3340 bls. sulphite pulp.

(———), Gudrun Maersk, Hamburg, 36 bls. old rags.

Castle & Overton, Inc., Gudrun Maersk, Antwerp, 111 bls. fustians, 71 bls. new cuttings.

Belmont Burlap Bag Co., Gudrun Maersk, Rotterdam, 150 bls. paperstock.

E. J. Keller Co., Inc., Gudrun Maersk, Rotterdam, 180 bls. old cotton rags.

A. de Vries Trading Corp., Gudrun Maersk, Rotterdam, 57 bls. old cottons.

D. Benedetto, Exbrook, Naples, 146 bls. rags.

Darmstadt Scott & Courtney, Mohamed Ali El Kebir, Marseilles, 78 bls. rags.

E. J. Keller Co., Inc., Mohamed Ali El Kebir, Alexandria, 65 bls. old white cotton rags.

Trade National Bank Trust Co., Mohamed Ali El Kebir, Alexandria, 55 bls. rags.

Philadelphia National Bank, Tramar, Rotterdam, 36 bls. cotton rags.

E. J. Keller Co., Inc., Tramar, Antwerp, 97 bls. old cotton rags.

E. J. Keller Co., Inc., Lista, Rouen, 117 bls. canvas cuttings.

IMPORTS AT NORFOLK

Week Ending Nov. 4

(———), American Farmer, London, 58 bls. old jute bagging.

E. J. Keller Co., Inc., American Farmer, London, 45 bls. paperstock.

A. de Vries Trading Corp., Gudrun Maersk, Rotterdam, 62 bls. bagging.

A. de Vries Trading Corp., Gudrun Maersk, Antwerp, 76 bls. bagging.

Dichman Wright & Pugh, Gudrun Maersk, Antwerp, 3 bls. old bagging.

IMPORTS AT ALEXANDRIA

Week Ending Nov. 4

Madden Reeve Angel & Co., Inc., Krageholm, Kotka, 1579 rolls newsprint.

IMPORTS AT BALTIMORE

Week Ending Nov. 4

Crown Cork & Seal Co., American Leader, Havre, 500 bags casein.

Gottesman & Co., Inc., Krageholm, Gothenburg, 254 bls. dry sulphate pulp.

Jay Madden Corp., Krageholm, Kotka, 192 rolls solid white woodpulp boards.

Pulp Sales Corp., Krageholm, Rauma, 468 bls. dry mechanically ground woodpulp.

Bulkley Dunton Pulp Co., Krageholm, Gefle, 254 bls. sulphite pulp.

E. J. Keller Co., Inc., Gudrun Maersk, Rotterdam, 176 bls. old cotton rags.

(———), Exchester, Leghorn, 71 bls. old cotton rags.

National City Bank, Exhibitor, Bombay, 100 bls. old jute rags.

E. J. Keller Co., Inc., Exhibitor, Bombay, 100 bls. old jute rags.

NEW LITERATURE

David E. Long Corp. Bulletin, "Another Del Protective Coating—Decorative Series 'D' Coatings." Sales copy.

National Safety Council. Booklets, (price according to quantity), "Psychology of Safety in Supervision." Includes six training booklets for foremen and supervisors—1) "You Can't Change Human Nature"; 2) "What Is Your U Q?"; 3) "Teaching Safety on the Job"; 4) "People Act Alike"; 5) "Safety Takes Teamwork"; 6) "You Are Human Too."

Monsanto Chemical Co. Technical Bulletin No. P-129, "Properties of Sterox CD." Lists physical, chemical and functional data, and suggested uses.

Clark Equipment Co. Catalog, "Materials Handling Equipment." Contains basic specifications for all equipment and special attachments.

American Wood-Preservers' Assn. Booklet, "Wood Preservation Statistics 1949." Presents statistical data on the quantity of wood treated and preservatives used in the U. S. Written by Henry B. Steer, Forest Service, U. S. Dept. of Agriculture.

Combustion Engineering-Superheater, Inc. 16-mm Kodachrome sound motion picture, "New Power for America." Pictures the physical magniture of postwar utility expansion and demonstrates the vastness of the program in terms of men, money and technical achievement.

Allis-Chalmers Mfg. Co. Bulletin 14B6410A, "Type H Motor Starters for 2300 to 5000 Volt Squirrel Cage Wound Rotor & Synchronous Motors"; Bulletin 14B7303, "Type 256 High Voltage Air Break Contacter."

Metallizing Engineering Co., Inc. Metco News, Vol. 5, No. 4, "Metcoloy No. 2." Briefs from industry on proven applications of metallizing; recommended methods.

Sethco. Brochure, "Sethco Filter Pump Units." Technical and descriptive data; and prices.

Cochrane Corp. Publication #5001, "Liquon Sludge Contact Reactors." Shows operation, applications, types of equipment available, typical installations.

Askania Regulator Co. Descriptive Paper #A, "Non-Contact Edge Positioning Controls and Web Handling Systems." How they work also examples of proven systems.

Metal Carbides Corp. Catalog CR-50, "Tungsten Carbide Rolls for Cold Rolling Metals." Covers use, design, operating procedure, grinding instructions, and properties.

Johns-Manville. Folder, "Asbestos Yarning Rope." Explains its use, yarning bell and spigot joints in water lines.

A. B. Svensk Travaru-Tidning. Book, price Sw.cr. 20, "Paper and Pulp Makers' Directory 1950/51." An

English edition of the "Brusewitz Directory." It briefs each woodpulp and paper mill in Sweden, Norway, Finland and Denmark. Also contains classified register of the productions and shipping marks. Book, price Sw.cr. 35, "Forest Dictionary, Finnish - Swedish - German-English." A standard work of terms used in Forestry and Wood Industries; consists of the alphabetically arranged Finnish title-words with their Swedish, English and German translations. Also contains an arrangement so that translations to and from each of the four languages can be easily made.

American Forest Products Industries, Inc. The 1950-51, Teacher's Manual, 8 pp., "America's Strength Grows in Her Forests." Distributed to schools in all 48 states, no charge.

NEW EQUIPMENT

Self-priming Pump

Unique advantages in self-priming applications are claimed for the new line of self-priming centrifugal pumps. For example, all valves are eliminated by the unusual design. Positive self-priming, no large and bulky priming reservoir, no recirculation of water during pumping stage, and efficiencies comparable to standard centrifugal pumps.

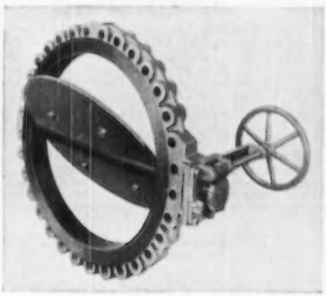
Made in sizes from ¼ h.p. to 5 h.p., open and closed impellers. Capacities to 120 g.p.m. and heads to 135 feet depending on capacity. Suction lifts up to 25 feet.

Graver Sphericone

A radical improvement in the design of sedimentation tanks for hot process water softeners has been developed in the Graver Sphericone. The new design is a hemisphere mounted on top of a cone. The inverted cone provides the uniformly increasing area from tip to circular top which is necessary for correct functioning of the tank, while the hemisphere provides the natural strength superiority which is inherent in its shape as compared to a cylinder. The raw water, steam and chemical inlets, spray heater, deaerator, and treated water collector are all mounted in the hemisphere, while the inverted cone contains the downtake, sludge bed, and rising zone of the water being treated. This combination is designed to make most efficient use of materials and tank space while assuring uniform stress distribution because of the virtual elimination of knuckle radii.

Heavy-duty Valves

The heavy-duty wafer type valves are designed to resist torque. Working on the known principle that face-to-face dimension does not reduce torque, one-piece body casting valves have been developed that have many of the rugged features of the standard double flanged units. In the open position the beveled streamlined vanes create a



Venturi action. Pressure drop, compared with many other types of valves is low and they therefore show substantial savings in pumping power, it is said. There are no pockets to capture sediment, no change of flow direction to create turbulence. Freedom from turbulence reduces erosion and cavitation.

CONVERTERS

BUYS SPECIALTY CONVERTERS

It has been announced by Leif B. Norstrand that Specialty Converters, Inc., purchased from Mrs. Doris E. Donovan, widow of the late Frank E. Donovan, all the assets and business of Specialty Converters, East Braintree, Mass.

Mr. Norstrand is president of Specialty Converters, Inc., and stated he would continue to manufacture the same high-quality waterproof and specialty papers that the company has made for many years.

Douglas E. Donovan, nephew of the late Mr. Donovan, has been with Specialty for more than 20 years, and has been elected vice-president. He will continue in charge of manufacturing. Wilbur C. Shoemaker, who also has been with the company for over 20 years has been elected vice-president in charge of sales. Mr. Charles G. Wray is treasurer.

Mr. Norstrand has been active in the paper industry for the past 26 years, starting in 1924 with his father, H. P. G. Norstrand, in his paper mills in Plattsburg, N. Y., which were sold in 1930 to the Diamond Match Co. He was then associated with Cellulose Sales Company, New York City, wood pulp importers, and for the past 8 years was vice-president of Westfield River Paper Co.

STEEL FINGERS ON SLOTTERS

Peter Martynook, a Canadian Boxes, Ltd., employe, was recently presented with a check for $100 for a suggestion he submitted to the labor-management committee.

Mr. Martynook, who is a printer slotter operator, was having considerable trouble running solid-fiber on his new machine. However, with his suggestion, to install some steel fingers on the heads of the slotter, his plugging problem was immediately overcome.

Canadian Boxes, Ltd., located in Vancouver, is a subsidiary of Pacific Mills, Ltd.

NATIONAL INCREASES WAGES

CARTHAGE, N. Y.—The National Paper Products Co., division of Crown Zellerbach, and the Carthage Paper Makers, Inc., announced cost of living wage increases which will effect about 460 wage earners in the Carthage area. The increases, amounting to four, five and six cents per hour, became effective October 30. The increases affected about 350 employes covered by an agreement with Local 93 of International Brotherhood of Papermakers and Local 118 of International Brotherhood of Pulp, Sulphite and Paper Mill Workers.

ROYAL CONTAINER CHARTERED

DOVER, Del.—Royal Container Corp., paper and cellophane products, has been chartered by the corporation department of the Secretary of State's office here. Capital of the firm was listed at $2 million. Corporation Trust Co., Wilmington, Del., is serving as the principal office.

FORESTRY

WESTVACO TREE FARM

CHARLESTON, S. C. — Some 340,000 acres of South Carolina timberland owned and operated by West Virginia Pulp and Paper Co. will be dedicated as a tree farm on November 9. Senator Burnet R. Maybank will make the principal address.

Loblolly pine predominates on the lands, followed by slash, longleaf, pond, shortleaf and spruce pine, all of which provide wood for strong, long-fibered pulp used by the company's kraft pulp and paper mill at North Charleston.

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER AND PRODUCTION RATIO REPORT

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

	Sept. 30	Oct. 7	Oct. 14	Oct. 21*	Oct. 28
1950	106.2	105.3	107.5	107.0r	106.9
	Oct. 1	Oct. 8	Oct. 15	Oct. 22	Oct. 29
1949	*96.3*	*90.5*	*97.1*	*101.1*	*98.6*

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1949	*94.6*	*92.8*	*89.1*	*85.1*	*82.7*	*78.6*	*72.8*	*87.6*	*89.7*	*96.0*	*98.2*	*89.8*	*88.0*
1950	97.6	100.8	101.9	100.5	100.8‡	103.2‡	90.8‡	105.8‡	101.7‡				

* Weekly capacity base increased by 746 tons.
r Revised.
‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1943	1944	1945	1946	1947	1948	1949	1950
Year to Date	88.3	88.4	89.1	101.2	104.3	97.1	87.3	101.3
Year Average	87.8	88.1	89.4	100.1	104.3	96.2	88.0	

PAPERBOARD OPERATING RATIOS†

	Sept. 30	Oct. 7	Oct. 14	Oct. 21	Oct. 28
1950	103	100	102	101	104
	Oct. 1	Oct. 8	Oct. 15	Oct. 22	Oct. 29
1949	*94*	*92*	*94*	*94*	*94*

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1949	*88*	*85*	*79*	*79*	*78*	*75*	*64*	*86*	*87*	*94*	*93*	*83*	*83*
1950	88	92	91	92	91	94	82	100	96	94			

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.
† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

Areas along branches and streams contain hardwoods and cypress.

A broad planting program is followed for idle acres, such as abandoned farmland and areas where natural reproduction has failed. In the past five years the company has planted 7,500,000 seedlings on 11,000 acres.

Six radio-equipped fire observation towers, fire warden patrols, some with two-way radio patrol cars, and in severe fire seasons, a plant patrol, protect the timberlands against fire. All tracts are guarded by plowed fire lanes, which are renewed regularly.

Included in the Tree Farm property is 20,000 acres of timberland operated and managed as the Westvaco Experimental Forest, which serves as a practical laboratory for studying and developing improved methods of growing and harvesting tree crops.

The land also includes a Forestry Camp maintained for forestry students of Duke University.

OPPOSE FEDERAL CONTROL

TALLAHASSEE, Fla. — The Forestry Division of the Florida State Chamber of Commerce met here on November 2 and took action opposing any Federal encroachment that endangers the private management of Florida's forestland. W. T. Edwards of Jacksonville, vice-president in charge of operations of the St. Joe Paper Co., is chairman of the Forestry Division.

The subject of Federal encroachment was broached by Paul W. Schoen, Valdosta, Ga., executive secretary of the Forest Farmers' Assn., which has members in about 12 Southern States. Mr. Schoen said that Senator Clinton P. Anderson, Democrat of New Mexico, introduced a bill in the Eighty-First Congress which proposes basically that the Secretary of Agriculture could control all forestry practices. He said that under this bill the States could participate in such a program, but if they did not take action by a certain time the Federal Government would take over.

Under this bill, he said, the Government would "regulate all timberland, including planting, managing and harvesting" if the now tabled bill is passed at a subsequent session. The motion passed stated that the Forestry Division of the Florida State Chamber of Commerce "opposed any regulation of that nature."

Paul W. Wright, Wilmington, Del., industrial forester of the Atlantic Coast Line Railroad, suggested the establishment of a forestry experiment station in South Florida, where different types of trees grow than in North Florida.

Dr. W. F. Brown of the Pulp and Paper Laboratory of the University of Florida told of experiments conducted at the laboratory in the use of scrub oak for making pulp for paper. These experiments were described in the *Paper Trade Journal* of September 28.

OBITUARIES

John Cochnower, 76, retired president of the Standard Paper Co., 909 Sycamore street, died October 25 in Cincinnati, Ohio. Mr. Cochnower had been associated with the paper company for 47 years. He retired five years ago.

William B. Darling, 49, connected with Riegel Paper Corp. for the past nine years, died on October 28.

Robert A. Feroe, 64, owner of the Pottstown Paper Box Co. and the Penn Paper Box Co., of Reading, Pa., died October 31. He is survived by his widow, Emma M.; seven sons and 12 grandchildren. One of the sons, Russell H., is president of the Reading firm. Four others, Robert A., Jr., Melvin L., William W. H., and Nelson are connected with the Pottstown company. The other sons are Barton K., of Lancaster, and Richard H., of Ardmore.

Thomas L. Hyndman, 57, Treasurer of Sloan Paper Co. died October 24.

Walter Kasten, 70, a director of Kimberly-Clark Corp. and Allis-Chalmers Mfg. Co., collapsed and died October 18 during a conference at Milwaukee, Wis. He had been discussing the endowment program of Lawrence College, Appleton, Wis., with other directors of the school when he succumbed.

John G. Kline, 75, died October 27 in Dayton, Ohio. Mr. Kline was president of the Burnley Manufacturing Co., Dayton, and a director of the American Envelope Co., West Carrollton. For many years he was secretary-treasurer of the old Miamisburg Paper Mill Co.

G. Davies Preston, 40, of Swarthmore, Pa., sales personnel manager of Scott Paper Co., died suddenly November 2, in Cambridge, Mass., where he was attending a three-month advance management course at the Harvard University Graduate School of Business Administration.

In September, 1934, Mr. Preston joined the Scott organization as a member of its Consumer Representative Department, and later joined the sales force. On September 1, 1945, he was made sales personnel manager which position he held until his death.

Surviving are his widow, Elizabeth Carver Preston, and three children, Eleanor, Susan and David.

Charles Tohill, 81, for many years woods superintendent for the J. R. Booth Co., died in Ottawa, Ont., on November 1. He is survived by a brother and two sisters.

CLEARING HOUSE

HELP WANTED

MEN WANTED
POSITIONS OPEN

We can place managers, superintendents and assistant superintendents for roofing felt and asbestos cement mills; box factory superintendent and assistant superintendent.
Mechanical engineers, draftsmen and head draftsman; loss pipe fitter; master mechanics; chemists, chemical engineers and laboratory men; Fourdrinier and Cylinder machine foremen; coating foreman; paper mill accountant; mechanical equipment salesman; beater engineers; machine tenders and back tenders.

LIST YOUR CONFIDENTIAL APPLICATION WITH US

We will keep you informed of attractive positions open in the pulp and paper mills.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., Boston 8, Mass.

SPECIALISTS IN PLACING PULP AND PAPER MILL EXECUTIVES N-9

WANTED
BAG FACTORY SUPT.

To run modern paper bag making plant specializing in plain and printed kraft bags of many types. Applicants must be experienced in adjusting, machine maintenance, trouble shooting, and supervision. Our people know of this ad. Give complete data first letter including age, experience, salary requirements. Confidential.

Box 50-551, care Paper Trade Journal. N-23

"WE HAVE EXCELLENT OPENING for a machine designer with experience, preferably in pulp and paper mill or heavy machinery. Technical graduate or equivalent desired. Salary commensurate with ability. This is a permanent position. When replying, please give details, including experience, qualifications and salary expected.

THE APPLETON MACHINE COMPANY
Appleton, Wisconsin N-23

GRADUATE CHEMICAL OR MECHANICAL ENGINEER

For Production Engineering position on Supervisory Staff of Paper Board Mill located in Indiana. Mill is unit of one of leading and nationally recognized paper board, carbon and container manufacturing concerns. Unusual opportunity for aggressive young men to learn production and control methods. Advancement should be rapid, depending only upon the ability of the man to assume responsibility. Inherent supervisory ability important. Prefer man recently graduated from recognized Engineering College. Please give details of background in first letter. Address Box 50-533 care Paper Trade Journal. N-16

CHEMICAL ENGINEER

Degree not essential. Must have actual experience in research and development work on wood fiber insulation board products. Experience in field of coatings and acoustical products valuable. Unusual opportunity for person with necessary background and experience. Permanent position, with large manufacturing plant in South. Good salary. Only qualified need apply. Replies confidential. Our personnel know of this ad. Address Box 50-532 care Paper Trade Journal. N-23

HELP WANTED

Chief Engineer, for paper mill; Development Engineer, for large convertor; Chemist, know de-inking processes; Superintendents (2); Night Supervisor, good color man; Cost Accountants and Cost Clerks; Sales Manager for converting plant; Production Control Men; Man for Purch. Dept. We also require a number of Beater Engineers, Machine Tenders and Backtenders and ask them to write for information.

PERSONNEL SERVICE ASSOC., 115 State Street, Springfield 3, Mass. N-9

SALES ENGINEER
For
Mechanical Equipment

Chemical Engineer 30 years old or under, with enough selling experience to know he wants to sell—and can sell. Equipment produced by small, but the outstanding, manufacturer in its field for Paper and Textile industries. Will headquarter in Miami Valley of Ohio. Write full details and references first letter, including salary requirements and recent snapshot. Our employees know of this advertisement.

Box No. 50-516 Paper Trade Journal. N-9

WANTED

Beater Engineers and Back Tenders for one machine mill in East, making folding grades. Must be experienced. Good pay and steady employment. Address Box 50-543 care Paper Trade Journal. N-23

ASSISTANT SUPERINTENDENT

We have been looking for an Assistant Superintendent for a long time but haven't found the right man. If you are a young man with a combination of technical training and paper machine experience, this may be the right opportunity for you to get ahead. We will pay what you are worth. Write Box 50-514 care Paper Trade Journal. N-16

PRODUCTION CHIEF

Paper converting, nationally known. Printing, coating, gumming, laminating, finishing operations. Lifetime position for top-flight production executive. Our people know of this ad. Send full details confidentially to President, Box 50-443, care Paper Trade Journal. TF

WANTED—PROJECT ENGINEER — California. Process Plant Design and Project Engineer. Experience in pulp and paper and building materials plants preferred. Minimum five years experience and engineering degree. Competitive salary depending upon individual qualifications. Address Box 50-548 care Paper Trade Journal. N-16

COST ACCOUNTANT with Time Study background in paper or textile field wanted by Maine Paper Mill. Reply giving age, experience and salary expected. Address Box 50-552 care Paper Trade Journal. N-9

WORKING SUPERINTENDENT for small, fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 50-378 care Paper Trade Journal. TF

HELP WANTED

SALARIED POSITIONS $3,500—$25,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (40 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y. TF

WANTED — SALES ENGINEER — Experienced in Pulp and Paper Mills, for sales and service work. Excellent opportunity with old established machinery manufacturer. In reply, give resume of education, experience and current salary. Address Box 50-512 care Paper Trade Journal. TF

YOUR BOSS wanted for Board Mill in East. Must have experience on folding grades. Address Box 50-473 care Paper Trade Journal. TF

SOUTH AMERICA—Machine Tender, under 35, wanted for mill in Peru—both Fourdrinier and cylinder machine experience desirable but not essential—good opportunity for advancement—give experience and family status. Address Box 50-522 care Paper Trade Journal. N-16

WANTED—Chemist or Chemical Engineer for Newsprint & Specialty with one year's experience, preferably Pulp & Paper. Give references, experience, etc. Location Province of Quebec, Canada. Address Box 50-534 care Paper Trade Journal. N-9

WANTED—Superintendent for small cylinder mill running lightweights. Full resume please. Address Box 50-554 care Paper Trade Journal. N-9

SITUATIONS WANTED

TO CHEMICAL MANUFACTURERS

Desiring new and better contacts with New England paper and textile mills, converters and other large users of chemical products, a man will be available January first. Twenty-five years experience as sales engineer and branch manager. Fundamental knowledge of user's manufacturing processes. Wide acquaintance with the executive and technicians who determine the sale. Ability to organize and train technical salesmen.

ADDRESS BOX #62, BRAINTREE 84, MASS. N-16

POSITION WANTED

Mechanical Engineer, twenty years of varied experience design, erection, and operation. Ten years in Paper Mill equipment, of which eight years were on High Speed Tissue and two on Board Mill operations; Hot Melt and Clay Coating. Available. Address Box 50-544 care Paper Trade Journal. N-9

SUPERINTENDENT—25 years practical experience on cylinder machine making test liner, chip .009 and boxboard. Good production man. Good labor relations. Address Box 50-549 care Paper Trade Journal. N-9

UNIVERSITY GRADUATE with 18 years experience in the pulp and paper industry as purchasing agent, engineer and executive, desires position with progressive company. Write Box 50-519 care Paper Trade Journal. N-9

ASSISTANT SUPERINTENDENT or Foreman with 20 years experience in converting specialty papers. Can handle help, get quality and production. Best of references. Address Box 50-530 care Paper Trade Journal. TF

SITUATIONS WANTED

PLANT SUPERINTENDENT

Intimate knowledge adjusting all types bag and printing machinery, such as flat & squares, self-opening squares, sacks, satchel-bottom cellophane, roll-cut envelopes, etc. Potdevins, Matadors, Webers, Lockport and many others. Aniline, anilox, letter-press and gravure printing. Electric-eye registration, slitting, sheeting, etc. Many years plant management and personnel training. Engineering education with background of practical experience in machine design and machine-shop management. Seek connection with progressive organization who are in need of a sober, hard working executive with initiative and ability.

Address Box 50-540, Care Paper Trade Journal. N-9

SUPERINTENDENT—Energetic young man desires to make change. Experienced on Yankee Fourdrinier machines manufacturing facial, towels, toilet tissue and napkins (colored and white). Good, steady conscientious worker. Starting salary $7500 plus moving charges. Address Box 50-538 care Paper Trade Journal. N-23

SUPERINTENDENT 25 YEARS PRACTICAL EXPERIENCE manufacturing folding boxboard and high grade light and heavy weight specialties from sulphite, sulphate, groundwood and old paper stock. Aggressive, capable man, good references. Address Box 50-518 care Paper Trade Journal. N-16

SITUATIONS WANTED

EXPERIENCED KRAFT PULP AND PAPER MILL ENGINEER AND OPERATOR

wants to contact mills.

Cement Sacks, Gumming, Envelopes and other Specialties.

Address Box 50-439 care Paper Trade Journal. D-7

SUPERINTENDENT—With a long record as a Practical Paper Maker on Modern High Speed Cylinder Machines, making Boxboards and Specialties. A production man with an engineering background. Address Box 50-529 care Paper Trade Journal. N-9

PLANT MANAGER—Manufacture and conversion of boards and papers; wants change for greater opportunity. Competent and successful in organization; production; and labor relations. Address Box 50-521 care Paper Trade Journal. N-30

FOR SALE

TELEPHONE HUMBOLDT 2-2177

ROSS PAPER MACHINERY CO.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING PAPER MAKING EQUIPMENT

NEW USED REBUILT PAPER AND PULP MACHINERY

CABLE ADDRESS: JACROSS

MACHINERY WANTED
For outright purchase—
Paper Machines, Paper Mill Machinery and Converting Equipment.

AMERICA'S LARGEST BUYERS OF PAPER MAKING MACHINERY

BEATERS
1—Dayton High Speed—iron tub—60 tons per day.

BELTING—NEW
87 feet 8" 13 ply Goodyear Rubber Belting.
563 feet 8" 4 ply Silver Duck Transmission belt.
177 feet 10" 6 ply Silver Duck Transmission Belt.

BLOWERS
5—Blowers and Mill Exhausters.

CALENDER ROLLS
46 Chilled Iron Rolls—Assorted sizes.

CALENDER STACKS
1—112" face 7 roll.

CONVEYOR
1—18½ ft. long x 30" wide—with motor.

CORE CUTTERS
1—Cameron with 1" x 1½" mandrels.

CYLINDER MOLDS
1—134" face x 36" diameter, with stainless steel shafts.

DRIVES—ENCLOSED HERRING BONE GEAR
4—Falk right angle 75 hp—ratio 6.31-1.
1—Falk right angle 255 hp—ratio 7.14-1.
1—Falk straight 275 hp—ratio 1.92-1.
1—Falk straight 255 hp—ratio 3.12-1.
Above complete with clutch pulleys.

DRIVES—ENCLOSED DIRECT MOTOR CONNECTED
2—Falk 15 hp—ratio 38.6-1 with motor.
2—Falk 7.5 hp—ratio 23.4-1 with motor.
1—Falk 7.5 hp—ratio 45-1 with motor.
2—Falk 5 hp—ratio 63-1 with motor.
Above complete with panel controls, D. C. Generator and converter.

DRYERS
5—143" face x 48" diameter.
5—124" face x 48" diameter.
5—80" face x 36" diameter.
1—77" face x 48" diameter—with gear.
1—64" face x 36" diameter.
1—120" face x 18" diameter—Baby Dryer.
56—126" face x 42" diameter.
4—96" face x 36" diameter.
1—102" face x 48" diameter, with bearings.
4—100" face x 48" diameter—with gears and bearings.
3—110" face x 42" diameter with bearings and gears.
1—117" face x 48" diameter.
1—64" face x 36" diameter.

ELECTRIC PAPER MACHINE DRIVES
1—G. E. 35/110 with G. E. Generator, Exciter and Controller.
1—G. E. 80/100 with G. E. Generator, Exciter and Controller.

FLAT SCREENS
4—Beloit Roller Shoe with plates, scrapers and flow boxes.

FILTER PRESS
1—New Sperry filter press, size 12, type 41.

FOURDRINIER SECTIONS
1—P & J 156" x 80 ft. ball bearing. Complete from Inlet to 22" diameter suction couch. Brass and Rubber covered table rolls. 5 Brass Suction Boxes operated at 1000' per minute.

JORDANS
1—26 Miami, for motor drive.
3—Jones Majestics with base and couplings—
2—23 Appleton with base and coupling.
1— Jones Majestic, Stainless Steel Filling.

LAMINATOR
1—Downingtown 52" Laminator.

MOTORS
1—Reliance 25 h.p. ball bearing, 550 v., 3 phase, 60 cycle—1750 r.p.m.

PULLEYS
30—Split cast iron tapered Pulleys.

PULP EQUIPMENT
1—Mitts & Merrill #17 Pulpwood chipper.
1—Trimbey pulp screen with scraper.
5—Waterous 3 pocket grinders. 32" wood. Complete with lead regulators, speed regulators, motors and starters. Latest type. Used 3 years.
1—Bird ball bearing Pulp Screen. Practically new. Used 6 months.

PUMPS
44—Centrifugal Pumps, open & closed impellers. Direct connected or Belt Driven. Extended base for motor. Assorted capacities and heads. Most used less than one year. Also new Gaulds Pumps.
1—Worthington Sump Pump—75 g.p.m. 60' head with General Electric 2 h.p. 220-440 v. motor.
1—Worthington Sump Pump—1500 g.p.m. 15' head with General Electric 7½ h.p. 220-440 v. motor.

REDUCERS
1—Link Belt 40 h.p. Ratio 2.2-1. 500 r.p.m.-227 r.p.m.
1—Falk 25 h.p. Ratio 300-1. 900 r.p.m.-3 r.p.m.

REELS
1—Beloit 132" two bowl upright reel.
1—Beloit 116" two bowl upright reel.

ROLLS—PRESS, COUCH, etc.
32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY SCREENS
1—#2 Leith-walk-ball bearing.
2—#2A Bird with Copper vats, enclosed drive.

SCREW PRESSES
1—Valley Voith Screw Press Size 2A, with new spare sets of plates.

SHEETERS
1—Finlay 90" with 6 roll back stand, motor and 4 slitters.
1—42" Dillon with 8 roll backstand.
1—48" Kidder Spot Sheeter.
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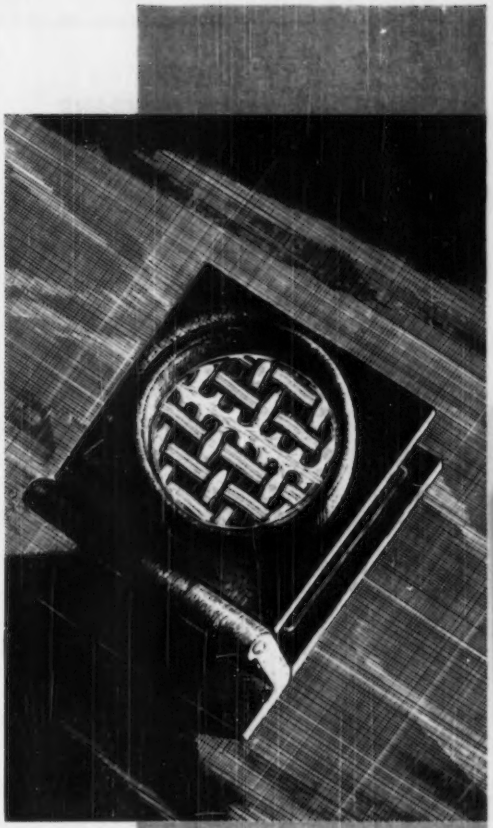

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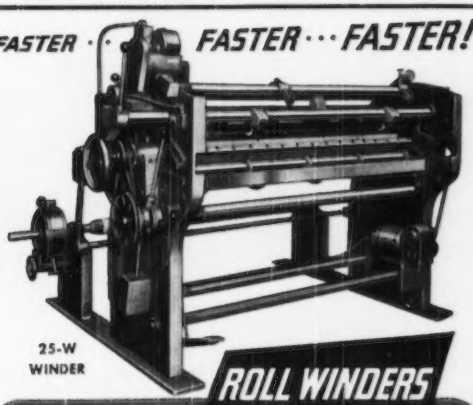

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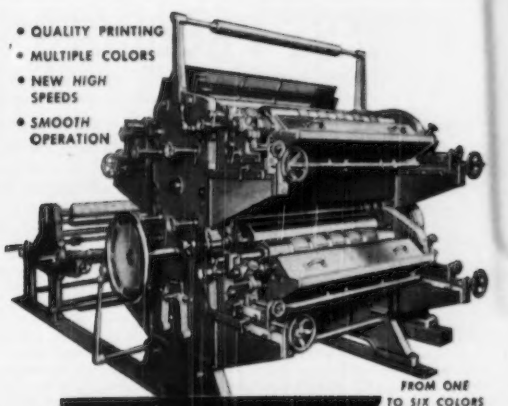

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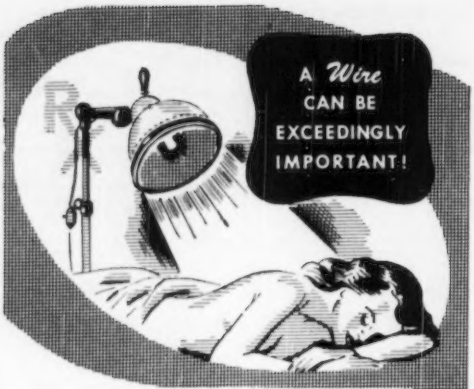

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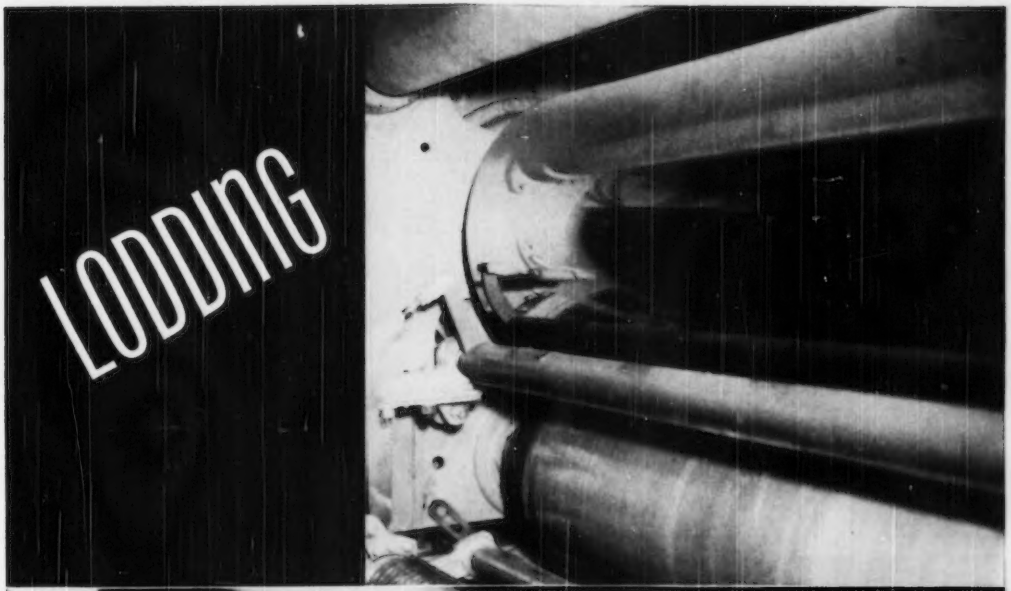

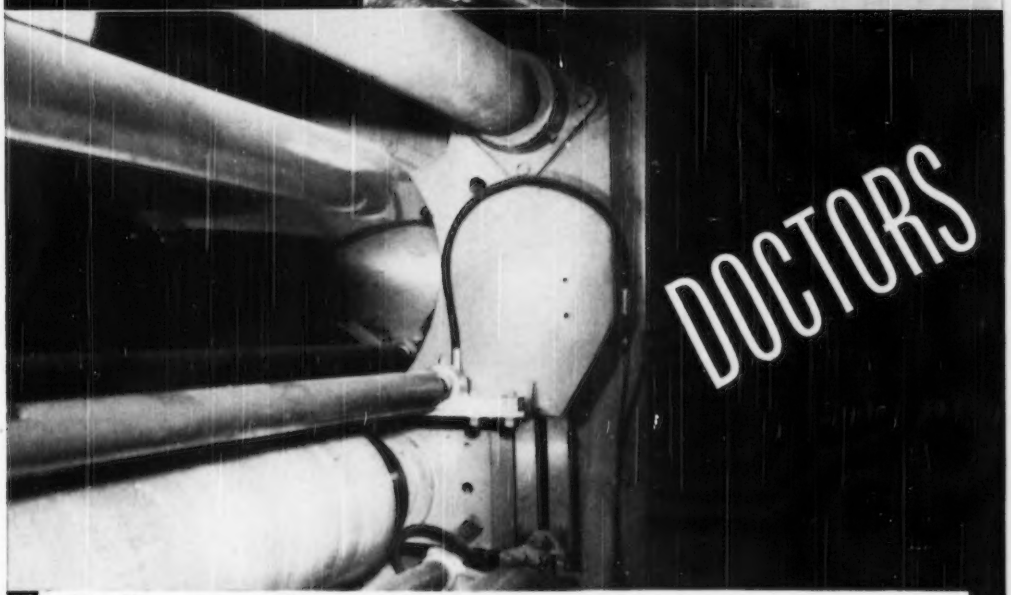

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PAPER TRADE JOURNAL

Beloit cutter on TIMKEN® bearings trims costs as it cuts board

COSTLY delays for maintenance are reduced to a minimum with the revolving knives and rolls of this Beloit Duplex 125" Board Cutter & Slitter mounted on Timken® tapered roller bearings. Down-time due to bearing failure is eliminated. Long, trouble-free operation is assured.

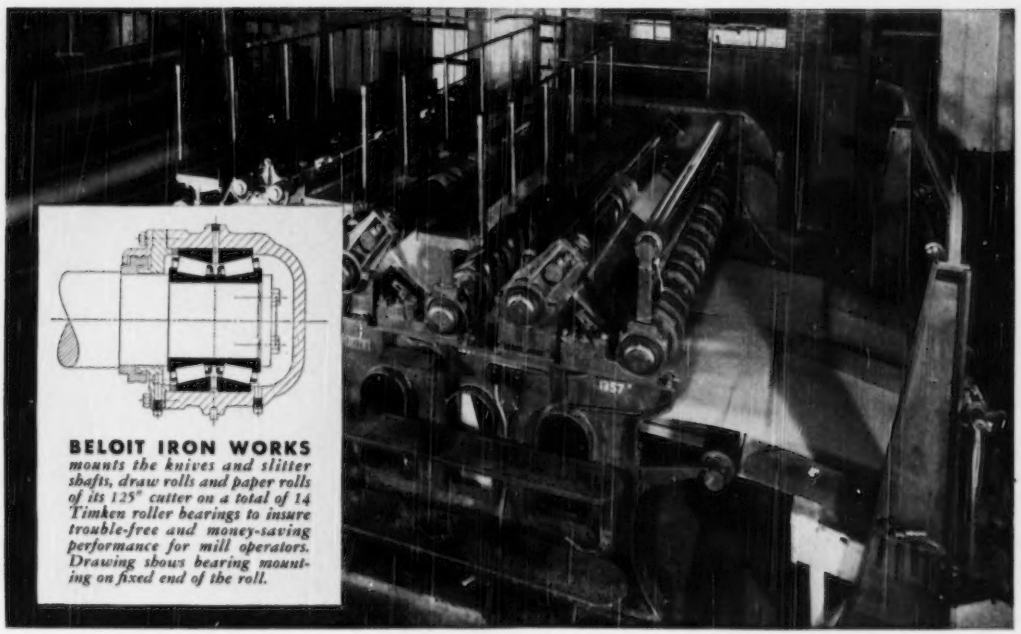
Timken bearings help mill operators save money other ways, too. They permit the use of efficient lubricant-retaining closures which prevent paper spoilage due to lubricant leakage. Complicated and costly lubrication systems are unnecessary. Rolls are held in positive alignment, minimizing losses due to improperly cut boards.

Rollers and races of Timken bearings are case-hardened for exceptional resistance to wear and have tough, shock-resistant inner cores. Line contact provides extra load-carrying capacity and incredibly smooth surface finish makes friction virtually negligible. Because of their tapered construction Timken bearings can take any combination of radial and thrust loads.

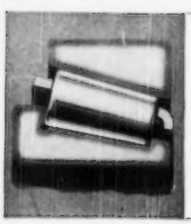
Under normal conditions, Timken bearings last the life of the machine in which they're used. That's because (1) they are carefully engineered for the job, (2) made of Timken fine alloy steel, and (3) precision manufactured.

Make sure the machines you build or buy have *all* the advantages that only Timken bearings can give. They are backed by 50 years of bearing research and development and are first choice throughout industry. Insist on bearings with the trade-mark "Timken". The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



BELOIT IRON WORKS *mounts the knives and slitter shafts, draw rolls and paper rolls of its 125" cutter on a total of 14 Timken roller bearings to insure trouble-free and money-saving performance for mill operators. Drawing shows bearing mounting on fixed end of the roll.*



GREATER LOAD AREA

Because the load is carried on the *line* of contact between rollers and races, Timken bearings carry greater loads, hold shafts in line, wear longer.

The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis steels.

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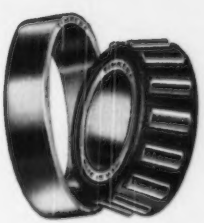

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